EPP-200

Precision Plasmarc Cutting Console

Instruction Manual

0558004676 **10 / 2007**

BE SURE THIS INFORMATION REACHES THE OPERATOR.
YOU CAN GET EXTRA COPIES THROUGH YOUR SUPPLIER.

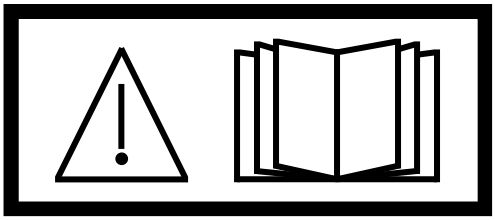
CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for arc welding and cutting equipment, we urge you to read our booklet, "Precautions and Safe Practices for Arc Welding, Cutting, and Gouging," Form 52-529. Do NOT permit untrained persons to install, operate, or maintain this equipment. Do NOT attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your supplier for further information. Be sure to read the Safety Precautions before installing or operating this equipment.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, the manufacturer recommends that a telephone or written request for service advice be made to the Authorized Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of the manufacturer. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the manufacturer or a service facility designated by the manufacturer.



READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE INSTALLING OR OPERATING.

PROTECT YOURSELF AND OTHERS!

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WARNING: These Safety Precautions are for your protection. They summarize precautionary information from the references listed in Additional Safety Information section. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below as well as all other manuals, material safety data sheets, labels, etc. Failure to observe Safety Precautions can result in injury or death.

PROTECT YOURSELF AND OTHERS -- Some welding, cutting, and gouging processes are noisy and require ear protection. The arc, like the sun, emits ultraviolet (UV) and other radiation and can injure skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields, and goggles are also required.
2. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck, and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to watch the arc and not to expose themselves to the rays of the electric-arc or hot metal.
3. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuffless trousers, high-topped shoes, and a welding helmet or cap for hair protection, to protect against arc rays and hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
4. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned, and open pockets eliminated from the front of clothing
5. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
6. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly far. Bystanders should also wear goggles over safety glasses.

FIRES AND EXPLOSIONS -- Heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:

1. Remove all combustible materials well away from the work area or cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints and coatings, paper, etc.
2. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.“
3. Do not weld, cut or perform other hot work until the workpiece has been completely cleaned so that there are no substances on the workpiece which might produce flammable or toxic vapors. Do not do hot work on closed containers. They may explode.
4. Have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.
5. Do not use equipment beyond its ratings. For example, overloaded welding cable can overheat and create a fire hazard.
6. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.
7. For additional information, refer to NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

ELECTRICAL SHOCK -- Contact with live electrical parts and ground can cause severe injury or death. DO NOT use AC welding current in damp areas, if movement is confined, or if there is danger of falling.

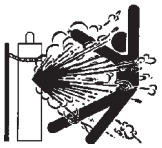
1. Be sure the power source frame (chassis) is connected to the ground system of the input power.
2. Connect the workpiece to a good electrical ground.
3. Connect the work cable to the workpiece. A poor or missing connection can expose you or others to a fatal shock.
4. Use well-maintained equipment. Replace worn or damaged cables.
5. Keep everything dry, including clothing, work area, cables, torch/electrode holder, and power source.
6. Make sure that all parts of your body are insulated from work and from ground.
7. Do not stand directly on metal or the earth while working in tight quarters or a damp area; stand on dry boards or an insulating platform and wear rubber-soled shoes.
8. Put on dry, hole-free gloves before turning on the power.
9. Turn off the power before removing your gloves.
10. Refer to ANSI/ASC Standard Z49.1 (listed on next page) for specific grounding recommendations. Do not mistake the work lead for a ground cable.

ELECTRIC AND MAGNETIC FIELDS—May be dangerous. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding and cutting current creates EMF around welding cables and welding machines. Therefore:

1. Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
2. Exposure to EMF may have other health effects which are unknown.
3. Welders should use the following procedures to minimize exposure to EMF:
   A. Route the electrode and work cables together. Secure them with tape when possible.
   B. Never coil the torch or work cable around your body.
   C. Do not place your body between the torch and work cables. Route cables on the same side of your body.
   D. Connect the work cable to the workpiece as close as possible to the area being welded.
   E. Keep welding power source and cables as far away from your body as possible.

FUMES AND GASES -- Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Do not breathe fumes and gases. Shielding gases can cause asphyxiation. Therefore:

1. Always provide adequate ventilation in the work area by natural or mechanical means. Do not weld, cut, or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead, beryllium, or cadmium unless positive mechanical ventilation is provided. Do not breathe fumes from these materials.
2. Do not operate near degreasing and spraying operations. The heat or arc rays can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas, and other irritant gases.
3. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.
4. Refer to ANSI/ASC Standard Z49.1 (see listing below) for specific ventilation recommendations.
5. **WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code §25249.5 et seq.)**



CYLINDER HANDLING -- Cylinders, if mishandled, can rupture and violently release gas. Sudden rupture of cylinder, valve, or relief device can injure or kill. Therefore:

1. Use the proper gas for the process and use the proper pressure reducing regulator designed to operate from the compressed gas cylinder. Do not use adaptors. Maintain hoses and fittings in good condition. Follow manufacturer's operating instructions for mounting regulator to a compressed gas cylinder.
2. Always secure cylinders in an upright position by chain or strap to suitable hand trucks, undercarriages, benches, walls, post, or racks. Never secure cylinders to work tables or fixtures where they may become part of an electrical circuit.
3. When not in use, keep cylinder valves closed. Have valve protection cap in place if regulator is not connected. Secure and move cylinders by using suitable hand trucks. Avoid rough handling of cylinders.
4. Locate cylinders away from heat, sparks, and flames. Never strike an arc on a cylinder.
5. For additional information, refer to CGA Standard P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders", which is available from Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

EQUIPMENT MAINTENANCE -- Faulty or improperly maintained equipment can cause injury or death. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not perform any electrical work unless you are qualified to perform such work.
2. Before performing any maintenance work inside a power source, disconnect the power source from the incoming electrical power.
3. Maintain cables, grounding wire, connections, power cord, and power supply in safe working order. Do not operate any equipment in faulty condition.
4. Do not abuse any equipment or accessories. Keep equipment away from heat sources such as furnaces, wet conditions such as water puddles, oil or grease, corrosive atmospheres and inclement weather.
5. Keep all safety devices and cabinet covers in position and in good repair.
6. Use equipment only for its intended purpose. Do not modify it in any manner.

ADDITIONAL SAFETY INFORMATION -- For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of "Precautions and Safe Practices for Arc Welding, Cutting and Gouging", Form 52-529.

The following publications, which are available from the American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, are recommended to you:

1. ANSI/ASC Z49.1 - "Safety in Welding and Cutting"
2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"
3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"
4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"
5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding"
6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding""
7. AWS SP - "Safe Practices" - Reprint, Welding Handbook.
8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."

MEANING OF SYMBOLS - As used throughout this manual: Means Attention! Be Alert! Your safety is involved.

DANGER **Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.**

WARNING **Means potential hazards which could result in personal injury or loss of life.**

CAUTION **Means hazards which could result in minor personal injury.**

ADVERTENCIA: Estas Precauciones de Seguridad son para su protección. Ellas hacen resumen de información proveniente de las referencias listadas en la sección "Información Adicional Sobre La Seguridad". Antes de hacer cualquier instalación o procedimiento de operación , asegúrese de leer y seguir las precauciones de seguridad listadas a continuación así como también todo manual, hoja de datos de seguridad del material, calcomanias, etc. El no observar las Precauciones de Seguridad puede resultar en daño a la persona o muerte.

PROTEJASE USTED Y A LOS DEMAS-- Algunos procesos de soldadura, corte y ranurado son ruidosos y requiren protección para los oídos. El arco, como el sol , emite rayos ultravioleta (UV) y otras radiaciones que pueden dañar la piel y los ojos. El metal caliente causa quemaduras. EL entrenamiento en el uso propio de los equipos y sus procesos es esencial para prevenir accidentes. Por lo tanto:

1. Utilice gafas de seguridad con protección a los lados siempre que esté en el área de trabajo, aún cuando esté usando careta de soldar, protector para su cara u otro tipo de protección.
2. Use una careta que tenga el filtro correcto y lente para proteger sus ojos, cara, cuello, y oídos de las chispas y rayos del arco cuando se esté operando y observando las operaciones. Alerte a todas las personas cercanas de no mirar el arco y no exponerse a los rayos del arco eléctrico o el metal fundido.
3. Use guantes de cuero a prueba de fuego, camisa pesada de mangas largas, pantalón de ruedo liso, zapato alto al tobillo, y careta de soldar con capucha para el pelo, para proteger el cuerpo de los rayos y chispas calientes provenientes del metal fundido. En ocaciones un delantal a prueba de fuego es necesario para protegerse del calor radiado y las chispas.
4. Chispas y partículas de metal caliente puede alojarse en las mangas enrolladas de la camisa , el ruedo del pantalón o los bolsillos. Mangas y cuellos deberán mantenerse abotonados, bolsillos al frente de la camisa deberán ser cerrados o eliminados.
5. Proteja a otras personas de los rayos del arco y chispas calientes con una cortina adecuada no-flamable como división.
6. Use careta protectora además de sus gafas de seguridad cuando esté removiendo escoria o puliendo. La escoria puede estar caliente y desprenderse con velocidad. Personas cercanas deberán usar gafas de seguridad y careta protectora.

FUEGO Y EXPLOSIONES -- El calor de las flamas y el arco pueden ocacionar fuegos. Escoria caliente y las chispas pueden causar fuegos y explosiones. Por lo tanto:

1. Remueva todo material combustible lejos del área de trabajo o cubra los materiales con una cobija a prueba de fuego. Materiales combustibles incluyen madera, ropa, líquidos y gases flamables, solventes, pinturas, papel, etc.
2. Chispas y partículas de metal pueden introducirse en las grietas y agujeros de pisos y paredes causando fuegos escondidos en otros niveles o espacios. Asegúrese de que toda grieta y agujero esté cubierto para proteger lugares adyacentes contra fuegos.
3. No corte, suelde o haga cualquier otro trabajo relacionado hasta que la pieza de trabajo esté totalmente limpia y libre de substancias que puedan producir gases inflamables o vapores tóxicos. No trabaje dentro o fuera de contenedores o tanques cerrados. Estos pueden explotar si contienen vapores inflamables.
4. Tenga siempre a la mano equipo extintor de fuego para uso instantáneo, como por ejemplo una manguera con agua, cubeta con agua, cubeta con arena, o extintor portátil. Asegúrese que usted esta entrenado para su uso.
5. No use el equipo fuera de su rango de operación. Por ejemplo, el calor causado por cable sobrecarga en los cables de soldar pueden ocasionar un fuego.
6. Después de termirar la operación del equipo, inspeccione el área de trabajo para cerciorarse de que las chispas o metal caliente ocasionen un fuego más tarde. Tenga personal asignado para vigilar si es necesario.
7. Para información adicional , haga referencia a la publicación NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", disponible a través de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

CHOQUE ELECTRICO -- El contacto con las partes eléctricas energizadas y tierra puede causar daño severo o muerte. NO use soldadura de corriente alterna (AC) en áreas húmedas, de movimiento confinado en lugares estrechos o si hay posibilidad de caer al suelo.

1. Asegúrese de que el chasis de la fuente de poder esté conectado a tierra através del sistema de electricidad primario.
2. Conecte la pieza de trabajo a un buen sistema de tierra física.
3. Conecte el cable de retorno a la pieza de trabajo. Cables y conductores expuestos o con malas conexiones pueden exponer al operador u otras personas a un choque eléctrico fatal.
4. Use el equipo solamente si está en buenas condiciones. Reemplaze cables rotos, dañados o con conductores expuestos.
5. Mantenga todo seco, incluyendo su ropa, el área de trabajo, los cables, antorchas, pinza del electrodo, y la fuente de poder.
6. Asegúrese que todas las partes de su cuerpo están insuladas de ambos, la pieza de trabajo y tierra.
7. No se pare directamente sobre metal o tierra mientras trabaja en lugares estrechos o áreas húmedas; trabaje sobre un pedazo de madera seco o una plataforma insulada y use zapatos con suela de goma.
8. Use guantes secos y sin agujeros antes de energizar el equipo.
9. Apage el equipo antes de quitarse sus guantes.
10. Use como referencia la publicación ANSI/ASC Standard Z49.1 (listado en la próxima página) para recomendaciones específicas de como conectar el equipo a tierra. No confunda el cable de soldar a la pieza de trabajo con el cable a tierra.

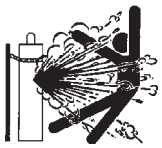
CAMPOS ELECTRICOS Y MAGNETICOS - Son peligrosos. La corriente eléctrica fluye através de cualquier conductor causando a nivel local Campos Eléctricos y Magnéticos (EMF). Las corrientes en el área de corte y soldadura, crean EMF alrrededor de los cables de soldar y las maquinas. Por lo tanto:

1. Soldadores u Operadores que use marca-pasos para el corazón deberán consultar a su médico antes de soldar. El Campo Electromagnético (EMF) puede interferir con algunos marca-pasos.
2. Exponerse a campos electromagnéticos (EMF) puede causar otros efectos de salud aún desconocidos.
3. Los soldadores deberán usar los siguientes procedimientos para minimizar exponerse al EMF:
   A. Mantenga el electrodo y el cable a la pieza de trabajo juntos, hasta llegar a la pieza que usted quiere soldar. Asegúrelos uno junto al otro con cinta adhesiva cuando sea posible.
   B. Nunca envuelva los cables de soldar alrededor de su cuerpo.
   C. Nunca ubique su cuerpo entre la antorcha y el cable, a la pieza de trabajo. Mantega los cables a un sólo lado de su cuerpo.
   D. Conecte el cable de trabajo a la pieza de trabajo lo más cercano posible al área de la soldadura.
   E. Mantenga la fuente de poder y los cables de soldar lo más lejos posible de su cuerpo.

HUMO Y GASES -- El humo y los gases, pueden causar malestar o daño, particularmente en espacios sin ventilación. No inhale el humo o gases. El gas de protección puede causar falta de oxígeno.

Por lo tanto:

1. Siempre provea ventilación adecuada en el área de trabajo por medio natural o mecánico. No solde, corte, o ranure materiales con hierro galvanizado, acero inoxidable, cobre, zinc, plomo, berílio, o cadmio a menos que provea ventilación mecánica positiva . No respire los gases producidos por estos materiales.
2. No opere cerca de lugares donde se aplique substancias químicas en aerosol. El calor de los rayos del arco pueden reaccionar con los vapores de hidrocarburo clorinado para formar un fosfógeno, o gas tóxico, y otros irritant es.
3. Si momentáneamente desarrolla inrritación de ojos, nariz o garganta mientras est á operando, es indicación de que la ventilación no es apropiada. Pare de trabajar y tome las medidas necesarias para mejorar la ventilación en el área de trabajo. No continúe operando si el malestar físico persiste.
4. Haga referencia a la publicación ANSI/ASC Standard Z49.1 (Vea la lista a continuación) para recomendaciones específicas en la ventilación.
5. **ADVERTENCIA-- Este producto cuando se utiliza para soldaduras o cortes, produce humos o gases, los cuales contienen químicos conocidos por el Estado de California de causar defectos en el nacimiento, o en algunos casos, Cancer. (California Health & Safety Code §25249.5 et seq.)**



MANEJO DE CILINDROS-- Los cilindros, si no son manejados correctamente, pueden romperse y liberar violentamente gases. Rotura repentina del cilindro, válvula, o válvula de escape puede causar daño o muerte. Por lo tanto:

1. Utilize el gas apropiado para el proceso y utilize un regulador diseñado para operar y reducir la presión del cilindro de gas . No utilice adaptadores. Mantenga las mangueras y las conexiones en buenas condiciones. Observe las instrucciones de operación del manufacturero para montar el regulador en el cilindro de gas comprimido.
2. Asegure siempre los cilindros en posición vertical y amárrelos con una correa o cadena adecuada para asegurar el cilindro al carro, transportes, tablilleros, paredes, postes, o armazón. Nunca asegure los cilindros a la mesa de trabajo o las piezas que son parte del circuito de soldadura . Este puede ser parte del circuito elélectrico.
3. Cuando el cilindro no está en uso, mantenga la válvula del cilindro cerrada. Ponga el capote de protección sobre la válvula si el regulador no está conectado. Asegure y mueva los cilindros utilizando un carro o transporte adecuado. Evite el manejo brusco de los

MANTENIMIENTO DEL EQUIPO -- Equipo defectuoso o mal mantenido puede causar daño o muerte. Por lo tanto:

1. Siempre tenga personal cualificado para efectuar l a instalación, diagnóstico, y mantenimiento del equipo. No ejecute ningún trabajo eléctrico a menos que usted esté cualificado para hacer el trabajo.
2. Antes de dar mantenimiento en el interior de la fuente de poder, desconecte la fuente de poder del suministro de electricidad primaria.
3. Mantenga los cables, cable a tierra, conexciones, cable primario, y cualquier otra fuente de poder en buen estado operacional. No opere ningún equipo en malas condiciones.
4. No abuse del equipo y sus accesorios. Mantenga el equipo lejos de cosas que generen calor como hornos, también lugares húmedos como charcos de agua , aceite o grasa, atmósferas corrosivas y las inclemencias del tiempo.
5. Mantenga todos los artículos de seguridad y coverturas del equipo en su posición y en buenas condiciones.
6. Use el equipo sólo para el propósito que fue diseñado. No modifique el equipo en ninguna manera.

INFORMACION ADICIONAL DE SEGURIDAD -- Para más información sobre las prácticas de seguridad de los equipos de arco eléctrico para soldar y cortar, pregunte a su suplidor por una copia de "Precautions and Safe Practices for Arc Welding, Cutting and Gouging-Form 52-529.

Las siguientes publicaciones, disponibles através de la American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, son recomendadas para usted:

1. ANSI/ASC Z49.1 - "Safety in Welding and Cutting"
2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"
3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"
4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"
5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding“
6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding"“
7. AWS SP - "Safe Practices" - Reprint, Welding Handbook.
8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."

SIGNIFICADO DE LOS SIMBOLOS -- Según usted avanza en la lectura de este folleto: Los Símbolos Significan ¡Atención! ¡Esté Alerta! Se trata de su seguridad.

PELIGRO **Significa riesgo inmediato que, de no ser evadido, puede resultar inmediatamente en serio daño personal o la muerte.**

ADVERTENCIA **Significa el riesgo de un peligro potencial que puede resultar en serio daño personal o la muerte.**

CUIDADO **Significa el posible riesgo que puede resultar en menores daños a la persona.**

AVERTISSEMENT: Ces règles de sécurité ont pour objet d' assurer votre protection. Veillez à lire et à observer les précautions énoncées ci-dessous avant de monter l' équipement ou de commercer à l'utiliser. Tout défaut d'observation de ces précautions risque d'entraîner des blessures graves ou mortelles.

1. PROTECTION INDIVIDUELLE-- Les brûlures de la peau et des yeux dues au rayonnement de l'arc électrique ou du métal incandescent, lors du soudage au plasma ou à l'électrode ou lors du gougeage à l'arc, peuvent s'avérer plus graves que celles résultant d'une exposition prolongée au soleil. Aussi convient-il d'observer les précautions suivantes:

a. Portez un écran facial adéquat muni des plaques protectrices et des verres filtrants appropriés afin de vous protéger les yeux, le visage, le cou et les oreilles des étincelles et du rayonnement de l'arc électrique lorsque vous effectuez des soudures ou des coupes ou lorsque vous en observez l'exécution. AVERTISSEZ les personnes se trouvant à proximité de façon à ce qu'elles ne regardent pas l'arc et à ce qu'elles ne s'exposent pas à son rayonnement, ni à celui du métal incandescent.

b. Portez des gants ignifugés à crispins, une tunique épaisse à manches longues, des pantalons sans rebord, des chaussures à embout d'acier et un casque de soudage ou une calotte de protection, afin d'éviter d'exposer la peau au rayonnement de l'arc électrique ou du métal incandescent. Il est également souhaitable d'utiliser un tablier ininflammable de façon à se protéger des étincelles et du rayonnement thermique.

c. Les étincelles ou les projections de métal incandescent risquent de se loger dans des manches retroussées, des bords relevés de pantalons ou dans des poches. Aussi convient-il de garder boutonnés le col et les manches et de porter des vêtements sans poches à l'avant.

d. Protégez des étincelles et du rayonnement de l'arc électrique les autres personnes travaillant à proximité à l'aide d'un écran ininflammable adéquat.

e. Ne jamais omettre de porter des lunettes de sécurité lorsque vous vous trouvez dans un secteur où l'on effectue des opérations de soudage ou de coupage à l'arc. Utilisez des lunettes de sécurité à écrans ou verres latéraux pour piquer ou meûler le laitier. Les piquetures incandescentes de laitier peuvent être projetées à des distances considérables. Les personnes se trouvant à proximité doivent également porter des lunettes de protection.

f. Le gougeage à l'arc et le soudage à l'arc au plasma produisent un niveau de bruit extrêmement élevé (de 100 à 114 dB) et exigent par conséquent l'emploi de dispositifs appropriés de protection auditive.

2 PRÉVENTION DES INCENDES-- Les projections de laitier incandescent ou d'étincelles peuvent provoquer de graves incendies au contact de matériaux combustibles solides, liquides ou gazeux. Aussi faut-il observer les précautions suivantes:

a. Éloigner suffisamment tous les matériaux combustibles du secteur où l'on exécute des soudures ou des coupes à l'arc, à moins de les recouvrir complètement d'une bâche non-inflammable. Ce type de matériaux comprend notamment le bois, les vêtements, la sciure, l'essence, le kérosène, les peintures, les solvants, le gaz naturel, l'acétylène, le propane et autres substances combustibles semblables.

b. Les étincelles ou les projections de métal incandescent peuvent tomber dans des fissures du plancher ou dans des ouvertures des murs et y déclencher une ignition lente cachée. Veiller à protéger ces ouvertures des étincelles et des projections de métal.

c. N'exécutez pas de soudures, de coupes, d'opérations de gougeage ou autres travaux à chaud à la surface de barils, bidons, réservoirs ou autres contenants usagés, avant de les avoir nettoyés de toute trace de substance susceptible de produire des vapeurs inflammables ou toxiques.

d. En vue d'assurer la prévention des incendies, il convient de disposer d'un matériel d'extinction prêt à servir immédiatement, tel qu'un tuyau d'arrosage, un seau à eau, un seau de sable ou un extincteur portatif.

e. Une fois le travail à l'arc terminé, inspectez le secteur de façon à vous assurer qu'aucune étincelle ou projection de métal incandescent ne risque de provoquer ultérieurement un feu.

3. CHOC ÉLECTRIQUE-- Le gougeage à l'arc et à l'arc au plasma exige l'emploi de tensions à vide relativement importantes; or, celles-ci risquent de causer des dommages corporels graves et même mortels en cas d'utilisation inadéquate. La gravité du choc électrique reçu dépend du chemin suivi par le courant à travers le corps humain et de son intensité.

a. Ne laissez jamais de surfaces métalliques sous tension venir au contact direct de la peau ou de vêtements humides. Veillez à porter des gants bien secs.

b. Si vous devez effectuer un travail sur une surface métallique ou dans un secteur humide, veillez à assu-rer votre isolation corporelle en portant des gants secs et des chaussures à semelles de caoutchouc et en vous tenant sur une planche ou une plate-forme sèche.

c. Mettez toujours à la terre le poste de soudage/coupage en le reliant par un câble à une bonne prise de terre.

d. N'utilisez jamais de câbles usés ou endommagés. Ne surchargez jamais le câble. Utilisez toujours un équipement correctement entretenu.

e. Mettez l'équipement hors tension lorsqu'il n'est pas en service. une mise à la masse accidentelle peut en effet provoquer une surchauffe de l'équipement et un danger d'incendie. Ne pas enrouler ou passer le câble autour d'une partie quelconque du corps.

f. Vérifiez si le câble de masse est bien relié à la pièce en un point aussi proche que possible de la zone de travail. Le branchement des câbles de masse à l'ossature du bâtiment ou en un point éloigné de la zone de travail augmente en effet le risque de passage d'un courant de sortie par des chaînes de

levage, des câbles de grue ou divers chemins électriques.

g. Empêchez l'apparition de toute humidité, notamment sur vos vêtements, à la surface de l'emplacement de travail, des câbles, du porte-électrode et du poste de soudage/coupage. Réparez immédiatement toute fuite d'eau.

4. VENTILATION-- La respiration prolongée des fumées résultant des opérations de soudage/coupage, à l'intérieur, d'un local clos, peut provoquer des malaises et des dommages corporels. Aussi convient-il d'observer les précautions suivantes:

a. Assurez en permanence une aération adéquate de l'emplacement de travail en maintenant une ventilation naturelle ou à l'aide de moyens mécaniques. N'effectuez jamais de travaux de soudage ou de coupage sur des matériaux de zinc, de plomb, de beryllium ou de cadmium en l'absence de moyens mécaniques de ventilation capables d'empêcher l'inhalation des fumées dégagées par ces matériaux.

b. N'effectuez jamais de travaux de soudage ou de coupage à proximité de vapeurs d'hydrocarbure chloré résultant d'opérations voisines de dégraissage ou de pulvérisation. La chaleur dégagée ou le rayonnement de l'arc peut déclencher la formation de phosgène -- gaz particulièrement toxique -- et d'autres gaz irritants, à partir des vapeurs de solvant.

c. Une irritation momentanée des yeux, du nez ou de la gorge constatée au cours de l'utilisation de l'équipement dénote un défaut de ventilation. Arrêtez-vous de travailler afin de prendre les mesures nécessaires à l'amélioration de la ventilation. Ne poursuivez pas l'opération entreprise si le malaise persiste.

d. Certaines commandes comportent des canalisations où circule de l'hydrogène. L'armoire de commande est munie d'un ventilateur destiné à empêcher la formation de poches d'hydrogène, lesquelles présentent un danger d'explosion; ce ventilateur ne fonctionne que si l'interrupteur correspondant du panneau avant se trouve placé en position ON (Marche). Veillez à manœuvrer cette commande en vérifiant si le couvercle est bien en place, de façon à assurer l'efficacité de la ventilation ainsi réalisée. Ne jamais débrancher le ventilateur.

e. Les fumées produites par l'opération de soudage ou de coupage peuvent s'avérer toxiques. Aussi est-il nécessaire de disposer en permanence d'un dispositif adéquat de ventilation de type aspirant, afin d'éliminer du voisinage de l'opérateur tout dégagement de fumée visible.

f. Consultez les recommandations particulières en matière de ventilation indiquées à l'alinéa 6 de la norme Z49.1 de l'AWS.

5. ENTRETIEN DE L'ÉQUIPEMENT-- Un équipement entretenu de façon défectueuse ou inadéquate risque non seulement de réaliser un travail de mauvaise qualité mais, chose plus grave encore, d'entraîner des dommages corporels graves, voire mortels en déclenchant des incendies ou des chocs électriques. Observez par conséquent les précautions suivantes:

a. Efforcez-vous de toujours confier à un personnel qualifié l'installation, le dépannage et l'entretien du poste de soudage et de coupage. N'effectuez aucune réparation électrique sur l'équipement à moins d'être qua-lifié à cet effet.

b. Ne procédez jamais à une tâche d'entretien quelconque à l'intérieur du poste de soudage/coupage, avant d'avoir débranché l'alimentation électrique.

c. Maintenez en bon état de fonctionnement les câbles, le câble de masse, les branchements, le cordon d'alimentation et le poste de soudage/coupage. N'utilisez jamais le poste ou l'équipement s'il présente une défectuosité quelconque.

d. Prenez soin du poste de soudage et de coupage et des équipements accessoires. Gardez-les à l'écart des sources de charleur, notamment des fours, de l'humidité, des flaques d'eau maintenez-les à l'abri des traces d'huile ou de graisse, des atmosphères corrosives et des intempéries.

e. Laissez en place tous les dispositifs de sécurité et tous les panneaux de l'armoire de commande en veillant à les garder en bon état.

f. Utilisez le poste de soudage/coupage conformément à son usage prévu et n'effectuez aucune modification.

6. INFORMATIONS COMPLÉMENTAIRES RELATIVES À LA SÉCURITÉ--

Pour obtenir des informations complémentaires sur les règles de sécurité à observer pour le montage et l'utilisation d'équipements de soudage et de coupage électriques et sur les méthodes de travail recommandées, demandez un exemplaire du livret N° 52529 "Precautions and Safe Practices for Arc Welding, Cutting and Gouging" publié par ESAB. Nous conseillons également de consulter les publications sui-vantes, tenues à votre disposition par l'American Welding Society, 550 N.W. LeJuene Road, Miami, FL 32126:

a. "Safety in Welding and Cutting" AWS Z49.1

b. "Recommended Safe Practices for Gas-Shielded Arc Welding "AWS A6. 1.

c. "Safe Practices for Welding and Cutting Containers That Have Held Combustibles" AWS-A6.0.

d. "Recommended Safe Practices for Plasma Arc Cutting" AWS-A6. 3.

e. "Recommended Safe Practices for Plasma Arc Welding" AWS-C5. 1.

f. "Recommended Safe Practices for Air Carbon Arc Gouging and Cutting" AWS-C5. 3.

g. "Code For Safety in Welding and Cutting" CSA-Standard W117. 2.

2.1 Introduction

The EPP 200 Power Console is designed for mechanized plasma applications. It can be used with other ESAB products such as the PT-24 and PT-600 torches, an optional plumbing box and a remote set-up pendant.

- 50 to 200 Amperes cutting current range
- Forced air cooled
- Solid state DC power
- Integral water cooler
- Input voltage protection
- Local or remote front panel control
- Thermal switch protection for main transformer and power semiconductor components
- LED status troubleshooting

2.2 General Specifications

EPP 200 Power Console (0558004315):

OUTPUT (100% duty cycle)

Voltage 160VDC
Current range DC ..... 50A to 200A
Power ..... 8000 W to 32000 W
Open Circuit Voltage (OCV) 325VDC

INPUT

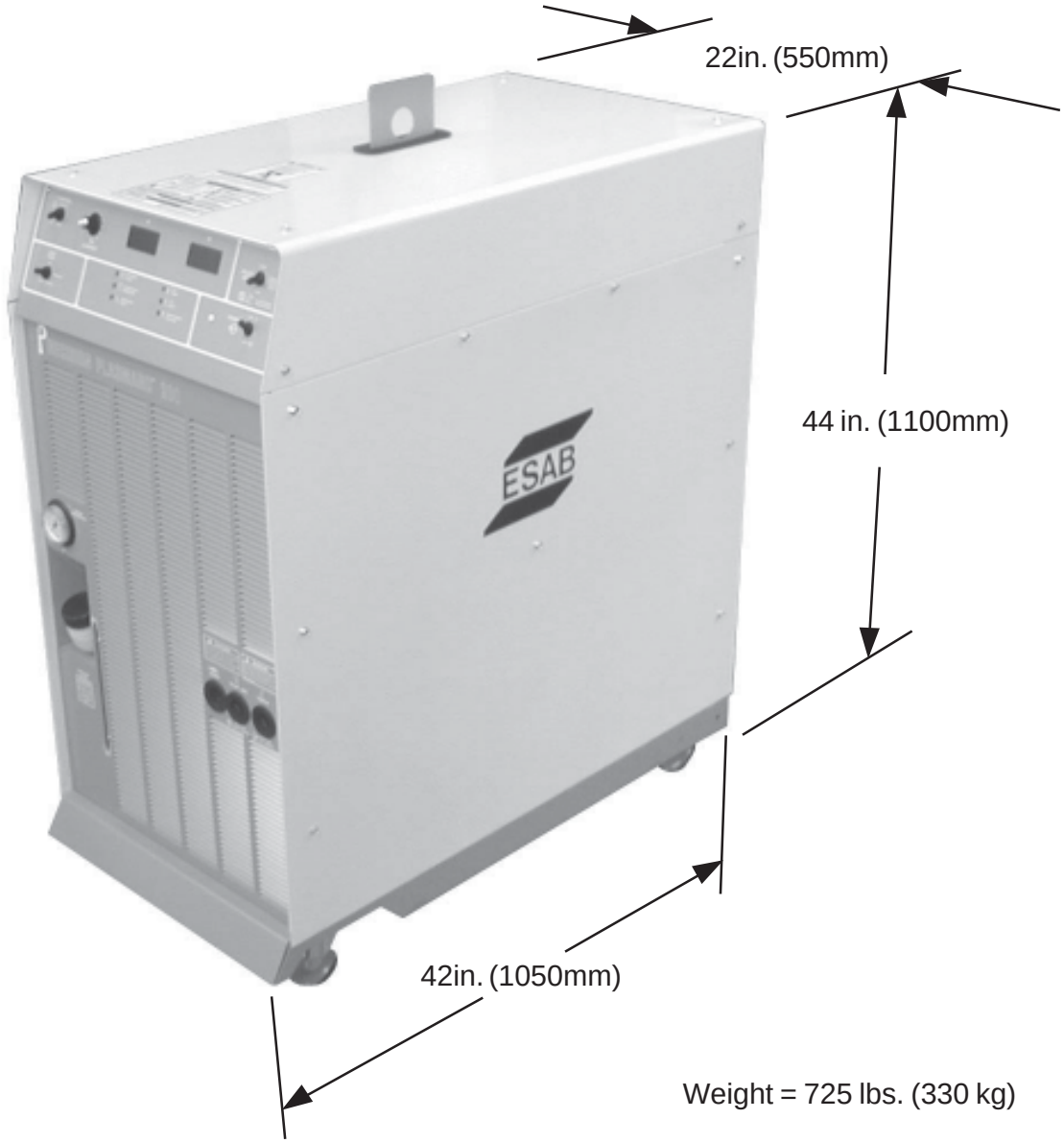
Voltage (3-phase) ..... 200/230/380/415/460/575 Volts
Current (3-phase) ..... 115/100/60/55/50/40 Amperes
Frequency 50/60Hz
KVA ..... 39.8 kW
Power ..... 37.8 kW
Power Factor 95%
Input Fuse ..... See Section 3, Installation

WARNING

Electric Shock Can Kill!
Use of torches not designed for this console could result in a hazardous electric shock.

Use only torches designed for the EPP-200 Console.

2.3 Dimensions and Weight



Weight = 725 lbs. (330 kg)

2.4 EPP-200 Options and Accessories

Options	* Cooling Water Hoses (2) Console to Plumbing Box	Control Cable Plumbing Box to Console	Pilot Arc Lead Plumbing Box to Console	Power Lead Console to Plumbing Box
5 ft. (1.5m)	0558003979	N / A	0558003985	0558003991
10 ft. (3.0m)	0558003980	N / A	0558003986	0558003992
20 ft. (6.1m)	0558003981	N / A	0558003987	0558003993
25 ft. (7.6m)	33132	0558004651	33303	22001
30 ft. (9.1m)	0558003982	N / A	0558003988	0558003994
40 ft. (12.2m)	0558003983	N / A	0558003989	0558003995
50 ft. (15.2m)	33133	0558004652	33304	22002
75 ft. (22.9m)	33134	0558004653	33305	22003
100 ft. (30.5m)	33135	0558004654	33306	22004
125 ft. (38.1m)	33136	0558003978	33307	22005
150 ft. (45.7m)	0558003984	0558004655	0558003990	0558003996

* Use with one adaptor fitting (41V12) included with unit.

Torch Coolant – 1gallon (3.8 L) - (4 required) = 156F05

2.5 Gas Hoses

Gas Type	25 ft. (7.6m)	50 ft. (15.2m)	75 ft. (22.8m)	100 ft. (30.4m)	125 ft. (38.1m)
Nitrogen (clear)	33122	33123	33124	33125	33126
Oxygen (clear - USA)	33117	33118	33119	33120	33121
Oxygen (blue - Euro)	0558002973	0558002974	0558002975	0558002976	0558002977
Argon/Hydrogen (H-35) (1)	33122*	33123*	33124*	33125*	33126*
Air (clear - USA)	33122**	33123**	33124**	33125**	33126**
Air (black - Euro) (2)	0558002978**	0558002979**	0558002980**	0558002981**	0558002982**

Note: *** =** Requires adapter P/N 19X54 (order separately)
**** =** Requires adapter P/N 74S76 (order separately)

2.6 Gas Regulators

	Station Regulator	Cylinder Regulator
Nitrogen	19155	998343
Oxygen	19151	998336
Argon/Hydrogen (H-35)	19153	998341
Air	30338	N/A

NOTICE

A separate start gas regulator is always required:

- For air plasma use air start gas.
- For oxygen or nitrogen use nitrogen start gas.
- For H-35 (argon/hydrogen) H-35 or nitrogen start gas.

A total of 3 regulators will be required (plasma, start and secondary).

NOTICE

When using a plumbing box:

- Gas hoses from supply cylinders go directly to the plumbing box.
- Console gas manifold is not used.

2.7 Basic Packages

The EPP-200 system is available as a pre-engineered package or can be ordered as individual parts as listed.

Basic Packages include:

- EPP-200 Console
- Plasma Torch
- Appropriate regulators for the gases indicated
- Gas hoses from regulators to console
- Torch coolant

Torch Coolant – 1 gallon (3.8 L) P/N 0558004297

3.1 General

WARNING

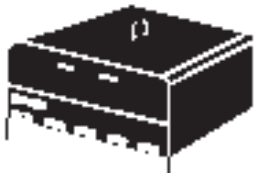
Failure To Follow Instructions Could Lead To Death, Injury Or Damaged Property

Follow these instructions to prevent injury or property damage.

You must comply with local, state and national electrical and safety codes.

3.2 Unpacking

CAUTION



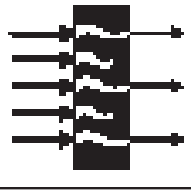
Use Lifting Eye When Hoisting From Overhead

Use safe practices when transporting with overhead method.

Unit weighs over 700 lbs (318 kg). Use approved straps or cables in good condition.

- Inspect for transit damage immediately upon receipt.
- Remove all components from shipping container and check for loose parts in container.
- Inspect louvers for air obstructions.

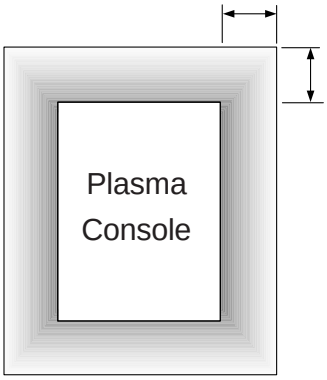
CAUTION



Do Not Restrict Air Flow

Restricting intake air with any type of filter on or around the Plasma console will result in overheating and may void the warranty.

3.3 Placement



- A minimum of 2 ft. (0.61m) clearance for cooling air flow.
- Plan for top panel and side panels having to be removed for maintenance, cleaning and inspection.
- Locate the EPP-200 relatively close to a properly fused electrical power supply.
- Keep area beneath power source clear for cooling air flow.
- Environment should be relatively free of dust, fumes and excessive heat. These factors will affect cooling efficiency.

CAUTION

Conductive Dust And Dirt Inside Power Source May Cause Arc Flash Over

Equipment damage may occur. Electrical shorting may occur if dust is allowed to buildup inside power source. See maintenance section.

3.4 Input Connections to Console

WARNING

Electric Shock Can Kill!

Provide maximum protection against electrical shock.

Before any connections are made inside the machine, open the line wall disconnect switch to turn power off.

3.4.1 Primary Power Specifications

EPP-200 is a 3-phase unit. Input power must be provided from a line (wall) disconnect switch that contains fuses or circuit breakers in accordance to local or state regulations.

Recommended input conductor and line fuse sizes:

Rated Load		Input and Ground conductor* CU/AWG	Time delay Fuse size (amperes)
Volts	Amperes		
200/208	115	1	150
230	100	2	125
380	60	4	80
415	55	6	70
460	50	6	70
575	40	8	60

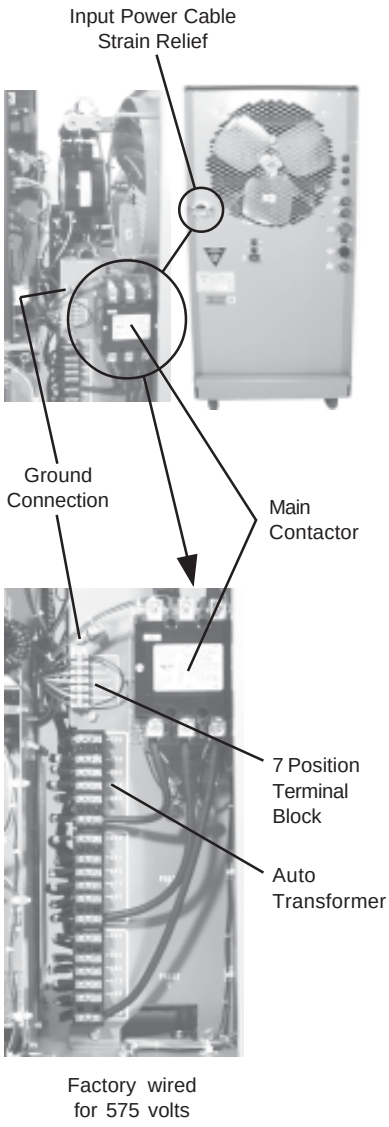
* Sizes per National Electrical Code for a 75° C (165° F) rated copper conductors @ 40° C (104° F) ambient. Not more than four conductors in raceway or cable. Local codes should be followed if they specify sizes other than those listed above. Input current values given in this table are at maximum output power (32kW) 200 amps at 160VDC.

NOTICE

Dedicated power line may be necessary.

EPP-200 is equipped with line voltage compensation but to avoid impaired performance due to an overloaded circuit, a dedicated power line may be required.

3.4.2 Primary Power Hookup Procedure



Factory wired
for 575 volts

The following procedure explains the proper installation steps for connecting primary electrical power to the plasma console.

NOTE: Safety codes specify the power ground wire be the last connection to break should the cable be pulled out of the unit. When preparing the cable for connection, make the ground wire 6 inches (152mm) longer than the three pr primary wires.

1. Ensure input power cable is disconnected from all electrical sources.

2. Remove right side panel (as viewed from front of console).

3. Route input power cable through the strain relief located at the rear panel.

4. Pull input power cable through the strain relief to allow cable wires sufficient length to connect to main contactor. Tighten strain relief to ensure input power cable is secured.

5. Connect input power cable ground wire to the ground lug provided above TB2 (7 position terminal block).

6. Connect three power leads of input power cable to terminals located atop the main contactor. Secure the leads by tightening each screw.

7. Connect jumper power cables from bottom of the main contactor to proper input voltage marked on auto transformer. Unit is factory set for 575V as shown at the left.

8. Connect jumper on TB2 to proper input voltage. This 7 position terminal block jumper is factory set to 575V.

CAUTION

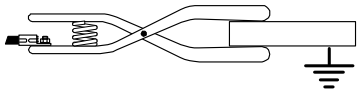
Input Power Jumper Connection

Ensure each input power jumper cable is connected to correct input voltage on autotransformer and on TB2.

Factory wired for 575 Volts

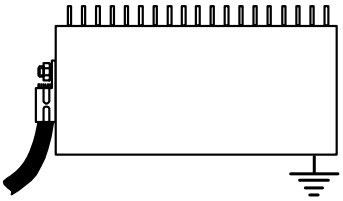
9. Connect input conductors to line (wall) disconnect.

10. Replace side panel. Replace only if all connections have made. Output connections require this panel to be removed.



Work ground to work piece

11. Connect the other end of work cable to workpiece or cutting table. Connection must be made to a clean, exposed metal surface, free of paint, rust, mill scale, etc.



Work ground to cutting table

WARNING

Electric Current Is Hazardous.

It is important to have a good earth ground connected to the workpiece or cutting table.

3.5 Connecting Plasma Torches to EPP-200 Console and Options

3.5.1 EPP-200 Output Cables, Hoses and Adapters (customer supplied)

EPP-200:

Lengths vary depending on system.

- Coolant Return
- Coolant Supply
- Pilot Arc Cable
- Electrode Cable
- Shield Gas (directly to the Plumbing Box)
- Start Gas (directly to the Plumbing Box)
- Cut Gas (directly to the Plumbing Box)
- Work Cable
- Pendant Cable (if pendant option is ordered)

See Description, Section 2 for part numbers.

A remote SETUP Panel option (P/N 22000) is available on Avenger 1 and larger ESAB cut cutting machines. This panel operates the same as the pendant. Refer to your machine manual for replacement parts.

3.6 Coolant Installation

WARNING

Electric Current Is Hazardous.

It is important to have a good earth ground connected to the workpiece or cutting table.

CAUTION

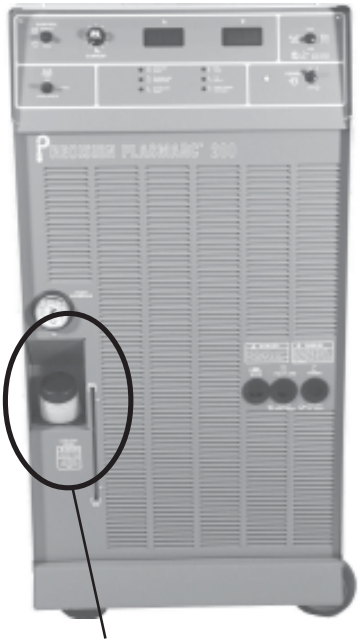
Commercial Antifreeze Will Cause Torch To Malfunction.

Use special torch coolant. P/N 156F05

Due to high electrical conductivity, **DO NOT** use tap water or commercial automotive type antifreeze for torch cooling. A specially formulated torch coolant is **REQUIRED**. This coolant also protects from freezing to -34° C (-29° F).

Operating the unit without coolant will cause permanent damage to the coolant pump.

Check coolant level frequently.



Coolant Fill Cap

Remove coolant fill cap at front console and fill coolant tank with 4 gallons (15 liters) of plasma torch coolant, P/N 156F05 (one gallon / 3.8 liters).

- Do not fill above indicated maximum level.
- Reinstall cap.

4.1 Introduction – Operational Safety

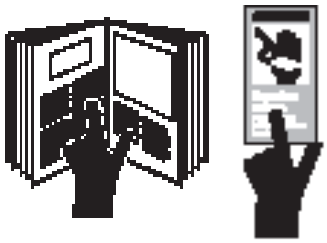
DANGER

Electric Shock Can Kill!

Disconnect current supply at wall disconnect before servicing console, torch or plumbing box.

- Do not operate console or plumbing box with any covers removed/open.
- Do not touch any torch front-end parts with power on.
- Do not attempt to service any portion of this plasma system unless power has been disconnected at the wall disconnect.

WARNING



This equipment can be hazardous if not properly operated and maintained.

Read and understand all equipment literature and warning labels before operating this equipment.

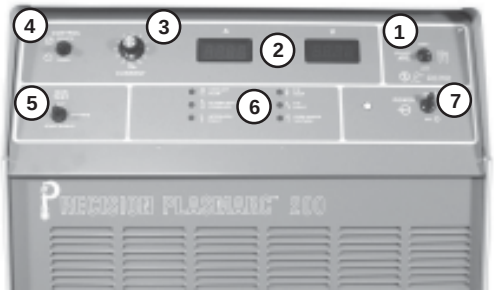
WARNING

Plasma Arc Cutting Can Be Hazardous To Eyes And Ears.

- Wear hearing protection.
- Wear eye protection specifically designed for arc welding and cutting. Lenses should be at least a No. 6 or No. 7 lens shade.
- Wear protective clothing to avoid skin burns.

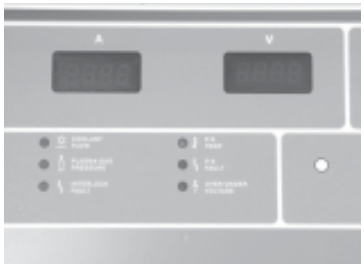
4.2 Operating the EPP-200 Console

4.2.1 Console Controls



1 Pilot Arc High/Low Switch
2 Cutting Voltage and Cutting Current Meters
3 Output Current Control
4 Remote/Panel Selection Switch
5 Gas Test Switch
6 Fault Lights
7 Main Power Switch

Pilot Arc Switch
Used to select pilot arc current range when Remote / Panel Switch is in the Panel position. HIGH position is used for most cutting applications. Electrode life is adversely affected when used in high position when low is suitable. Starting may be difficult if set on low when high is required. Related to the initial torch standoff height.



Cutting Voltage and Current Meters
"A" meter indicates actual cutting current, 0-200 amperes
"V" meter indicates actual output voltage, 0-160 VDC

Output Current Control
Sets the cutting current when current settings are made from the power console front panel. (The Remote/Panel switch must be in the Panel position.)

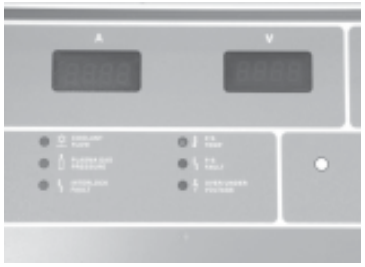
Remote/Panel Switch
Panel position – Output current is set by the output current control on the console front panel as described above.

Remote position – Output current is set by the CNC with an analog dc signal.

Gas Test Switch
Cut – Allows for setup of cut gas pressure and flow. Start/ Shield – Setup of gas pressures and flows.

Operate – Default position – Must be in this position for cutting.

Fault Indicator Lights



- **Coolant Flow** – Will show low coolant flow. Light will briefly show a fault when console is turned on and then go out.
- **Plasma Gas Pressure** — fault indicator – low plasma gas pressure. Torch will not fire when illuminated.
- **Interlock Fault** – Indicates Remote Plumbing box door is not properly closed.
- **P/S Temp** – fault indicator – over temperature condition in the inverter power source.
- **P/S Fault** – fault indicator – Not used.
- **Over/Under Voltage** – fault indicator – input voltage is above or below tolerances of the power source console. Will stay shut down console until main power switch is recycled and fault is corrected.

Main Power Switch
Controls the input power to the fan, water cooler, inverter and interface circuitry. Light illuminates to indicate power is on.

4.3 Sequence of Operation

1. Apply power by closing the line (wall) switch. Main power light will not illuminate until console power switch is turned ON. Fault light should flash and go out.

2. Select the Panel/Remote setting. If current is controlled from cutting machine CNC, place switch to **Remote** position. Consult cutting machine instructions for current setting. If current is not controlled by the CNC, select **Panel** and set current on output current dial.

3. Check coolant level. Level must be checked with console main power in OFF position. Coolant level must fall in the safe operating level.

4. Set pilot arc High/Low switch. Refer to cutting process data of the torch manual.

5. Turn on console power by placing power switch in ON position. White light to left of the switch will illuminate.

6. Check coolant pressure. The pressure is factory set between 80 to 90 PSI (5.5-6.2 bars)

7. Begin plasma cutting operation. This may include manually setting other options, depending on total plasma package.

If using panel mode, after cutting has begun, adjust current to desired amount.

Check for a fault light. If a fault light illuminates, **SHUT OFF POWER IMMEDIATELY** and refer to troubleshooting section.

5.1 General

WARNING

Electric Shock Can Kill!

Open wall disconnect switch before attempting any maintenance on:

- plasma console
- interconnecting cables

CAUTION

Only trained personnel should perform maintenance or repairs on this equipment.

5.2 Inspection and Cleaning

Frequent inspection and cleaning of the EPP-200 and related equipment are recommended for safety and proper operation. Consider the following during inspection and cleaning:

- Check work cable to workpiece connection.
- Check safety earth ground at workpiece and at power source chassis.
- Ensure cable and hoses are not damaged or kinked.
- Ensure all plugs, fittings, and ground connections are tight.
- Check screen filter in coolant pump (located inside console) periodically and flush as required.

WARNING

Flying Debris Hazard.

Flying Debris Can Seriously Injure Eyes

Wear protective eyewear when cleaning with compressed air.

Use low pressure air only.

CAUTION

Avoid Potential Equipment Damage

Water and/or oil can accumulate in compressed air lines. Be sure to direct the first air blast away from equipment to avoid damaging the junction box or flow control box**.**

- With all input power disconnected and with proper eye and face protection, blow out the inside of the power source, flow control, and junction box using low-pressure, clean dry compressed air.
- Periodically bleed all water from the air filter/regulator trap.

5.3 Gas Manifold Pressure Switches

Newer EPP-200 consoles are equipped with nonadjustable preset gas manifold pressure switches.

Older ESP-200 consoles have adjustable pressure switches.

Both type switches are preset for:

- 17 psig (1.2 bar), shield and start gas switches
- 22 psig (1.5 bar), cut gas switch

5.3.1 Pressure Switch Adjustment Procedure

1. Turn main power switch OFF OFF.
2. Remove right side panel
3. Turn wheel:
   - Counterclockwise to **increase** pressure
   - Clockwise to **decrease** pressure
4. Replace panel.
5. Resume operation.

5.3.2 Gas Manifold with Non-adjustable Pressure Switches (reference)

6.1 Introduction

WARNING

Electric Shock Can Kill!

Ensure all primary power to machine has been externally disconnected.

Open line (wall) switch before attempting inspection or performing work inside the plasma console or plumbing box.

WARNING

Capacitors Can Store High Voltages.

Disconnecting plasma console does not ensure capacitors are de-energized.

Ensure console capacitors are grounded after removing power and prior to performing maintenance.

6.2 Procedure

1. Shut main power switch on the console to OFF position.

2. Disconnect main power line (wall) switch.

3. Check for obvious external settings, switches and external connections.

4. If a problem is found, correct and proceed with normal operations.

5. If not, remove side panels. **(Reminder: Power must be disconnected before removing any covers.)**

6. Perform a visual inspection of internal components. Check for:
   - Loose or burned wiring and components
   - Secure terminal connections
   - Bulged or leaking capacitors
   - Other signs of discoloration

Refer to the troubleshooting guide for identification of many problems, possible causes and remedies.

Reference wiring diagrams and schematics are found in the last part of this section.

6.3 Front Panel Fault Lights

Fault Indicator Lights

- **Coolant Flow** – Will show low coolant flow. The light will briefly show a fault when console is turned on and then go out.
- **Plasma Gas Pressure** — fault indicator – low plasma gas pressure. Torch will not fire when indicated.
- **Interlock Fault** – Indicates Remote Plumbing box door is not properly closed.
- **P/S Temp** – fault indicator – over temperature condition in the inverter power source.
- **P/S Fault** – Not used.
- **Over/Under Voltage** – fault indicator – input voltage is above or below the tolerances of the power source console. Will stay shut down console until main power switch is recycled.

6.4 Troubleshooting Guide

WARNING

High Voltages Can Cause Serious Injury or Death!

Voltages in plasma cutting equipment are high enough to cause serious injury or death.

Only trained technicians should attempt diagnosis and repair of this machinery.

CAUTION

Avoid damaging your voltmeter.

Disconnect the power from the high frequency generator before checking voltages in the high frequency circuit.

Problem	Possible Cause	Corrective Action
Power switch is ON. Power LED is OFF. Fan is OFF. Pump is OFF.	1) Bad Power switch S1. 2) Open Fuse F4. 3) Open Jumper at TB2.	1) Check continuity of power switch. 2) Check Fuse F4 and related wiring 3) Check jumper and wiring of TB2
Power switch is ON. Power LED in ON. Pump is OFF. Fan is ON.	1) Bad or open CB2. 2) Pump Motor Failed.	1) Reset CB2. Check wiring and check free rotation of pump fan. 2) Replace Pump motor
Power LED is OFF. Pump is ON. Fan is ON. LEDs in power modules are OFF	1) Bad or Open CB1.	1) a. Reset CB1 b. If CB1 fails to reset, check wiring, bad T1, or PCB1.
Plasma gas fault indicator is ON	1) Plasma gas pressure to console is below 40 psi. 2) Bad pressure switch 3) Open wire between pressure switch and PCB1.	1) Adjust gas pressure to proper level for torch and application 2) Adjust (if adjustable type) or replace pressure switch. 3) Check wiring between PS1 & PS2 and PCB1 P1-9 and P1-10.

Problem	Possible Cause	Corrective Action
Power Source Temp fault indicator is ON.	1) Poor ventilation at rear of console. 2) Open thermal switch. 3) Open wire between temperature switch and PCB1	1) Make sure that there is 2 feet of clearance on each side of console. 2) With power OFF, check each thermal switch. Normal operation is: switch closed below 194°F. 3) Check wiring between temperature switches and PCB1 P1-15 and P1-16.
Over/Under Voltage fault indicator is ON	1) Input voltage is 15% above or below the selected console operating voltage. 2) Bad PCB1. 3) Bad PCB1 in MOD1. 4) Bad T1 in MOD1.	1) Provided input voltage must be equal to the selected console operating voltage. Change if necessary. 2) Replace PCB1. 3) Replace PCB1 in MOD1 4) Replace T1 in MOD1
Meters M1 or M2, no display.	1) Bad Meter	1) Replace Meter meters M
Meters M1 & M2, no display.	1) Bad PCB1.	1) Replace one meter to verify above step did not happen twice. If still not working replace PCB1.
Press torch switch or send start signal. (No pilot arc or main arc transfer.)	1) Gas Test switch is in START/SHIELD or CUT positions 2) Plasma gas pressure is to LOW 3) Improper current command signal 4) LEDX on MOD1 PCB1 is not ON when torch switch is depressed or start signal sent. 5) LEDX is ON but main contactor does not close 6) LEDX is ON. Main contactor is closed. No OCV or arc transfer.	1) Place Gas Test switch in OPERATE position. 2) Set plasma gas pressure per torch or application requirements (above 40 psi) 3) IF in manual mode, panel switch must be in PANEL and P5 must be in J5 connector. If in mechanized mode, panel switch must be in REMOTE and a current signal above 0 volts must be present. P5 must be in J6 connector 4) Test tbd 5) Test tbd 6) Test tbd

Problem	Possible Cause	Corrective Action
LEDX on MOD1 not ON		
LEDX on MOD2 not ON		
LEDX on MOD2 not ON when torch switch is depressed or start signal is sent		
Arc does not transfer to work. (Open Circuit Voltage is between 315 and 355. Pilot arc IS present.)	1) Open connection between the console WORK connector and the workpiece.	1) a) Check continuity of WORK cable and clamp b) Attach clamp to workpiece c) Ground work table to earth ground
Arc does not transfer to work. (Open Circuit Voltage is between 315 and 355. Pilot arc is NOT present.)	1) Pilot arc fuses F1 and/or F2 are open. 2) Bad pilot arc contactor. 3) Bad K3. 4) Bad PCB1 in MOD2. 5) Nozzle to Electrode short in torch. 6) Bad control PCB 7) No preflow signal from CNC. 8) Current setting to low 9) Contaminated or worn electrode.	1) Replace F1 and/or F2. 2) Replace pilot arc contactor. 3) Replace K3 4) Replace PCB1 in MOD2. 5) Disconnect torch from console. Check for open between pilot arc and torch leads. Repair if shorted. 6) Replace control PCB. 7) Bad PCB1. Bad MOD1 PCB1. 8) Readjust Current setting. Torch to high above workpiece. 9) Replace electrode.

NOTE:

Schematics and Wiring Diagrams on 11" x 17" paper are included inside the back cover of this manual.

7.1 General

Always provide the serial number of the unit on which the parts will be used. The serial number is stamped on the unit nameplate.

7.2 Ordering

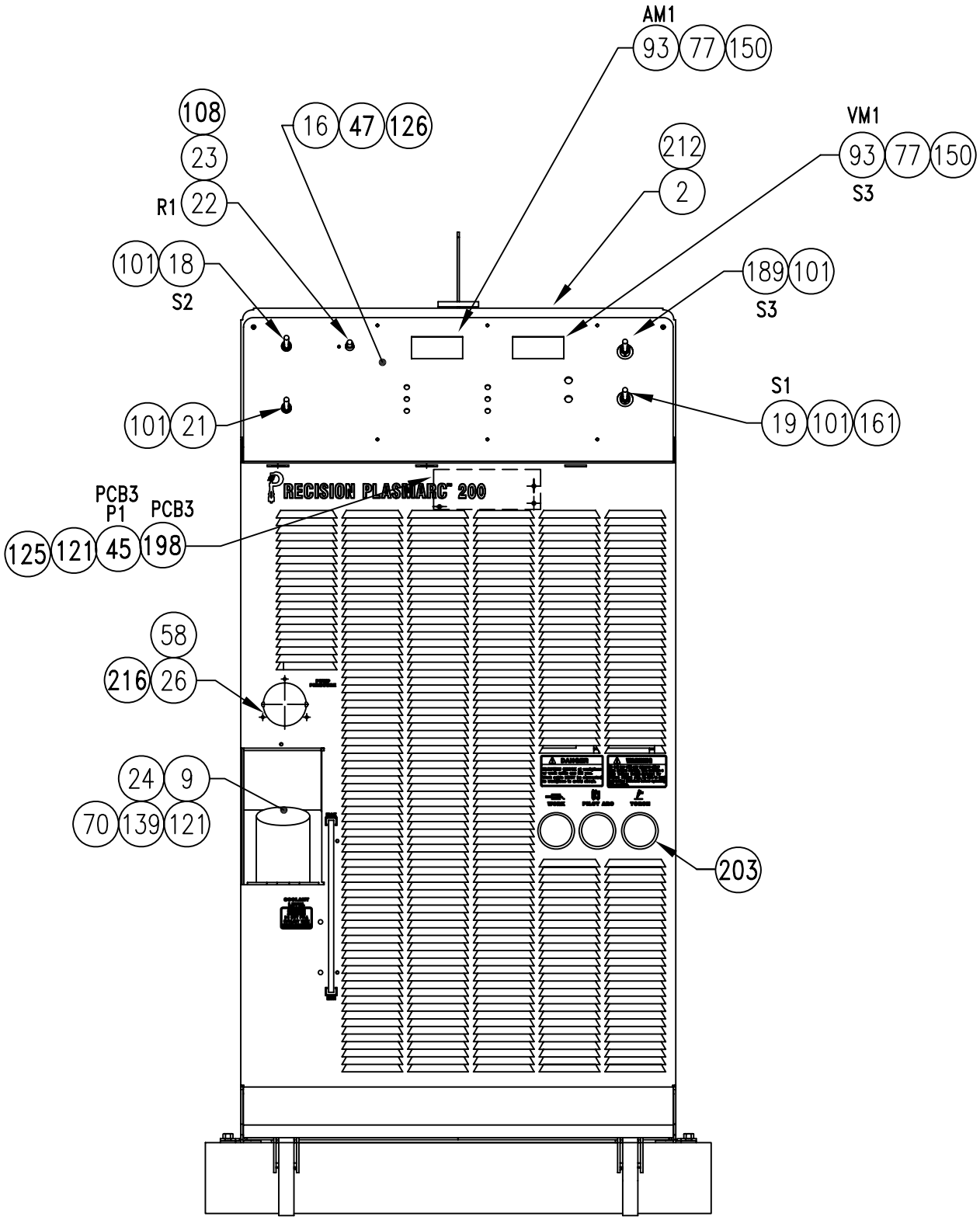
To ensure proper operation, it is recommended that only genuine ESAB parts and products be used with this equipment. The use of non-ESAB parts may void your warranty.

Replacement parts may be ordered from your ESAB Distributor.

Be sure to indicate any special shipping instructions when ordering replacement parts.

Refer to the Communications Guide located on the back page of this manual for a list of customer service phone numbers.

Note: Bill of material items that have blank part numbers are provided for customer information only. Hardware items should be available through local sources.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R1 22
16 47 126
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VM1
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S3
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S2
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PCB3
P1
PCB3
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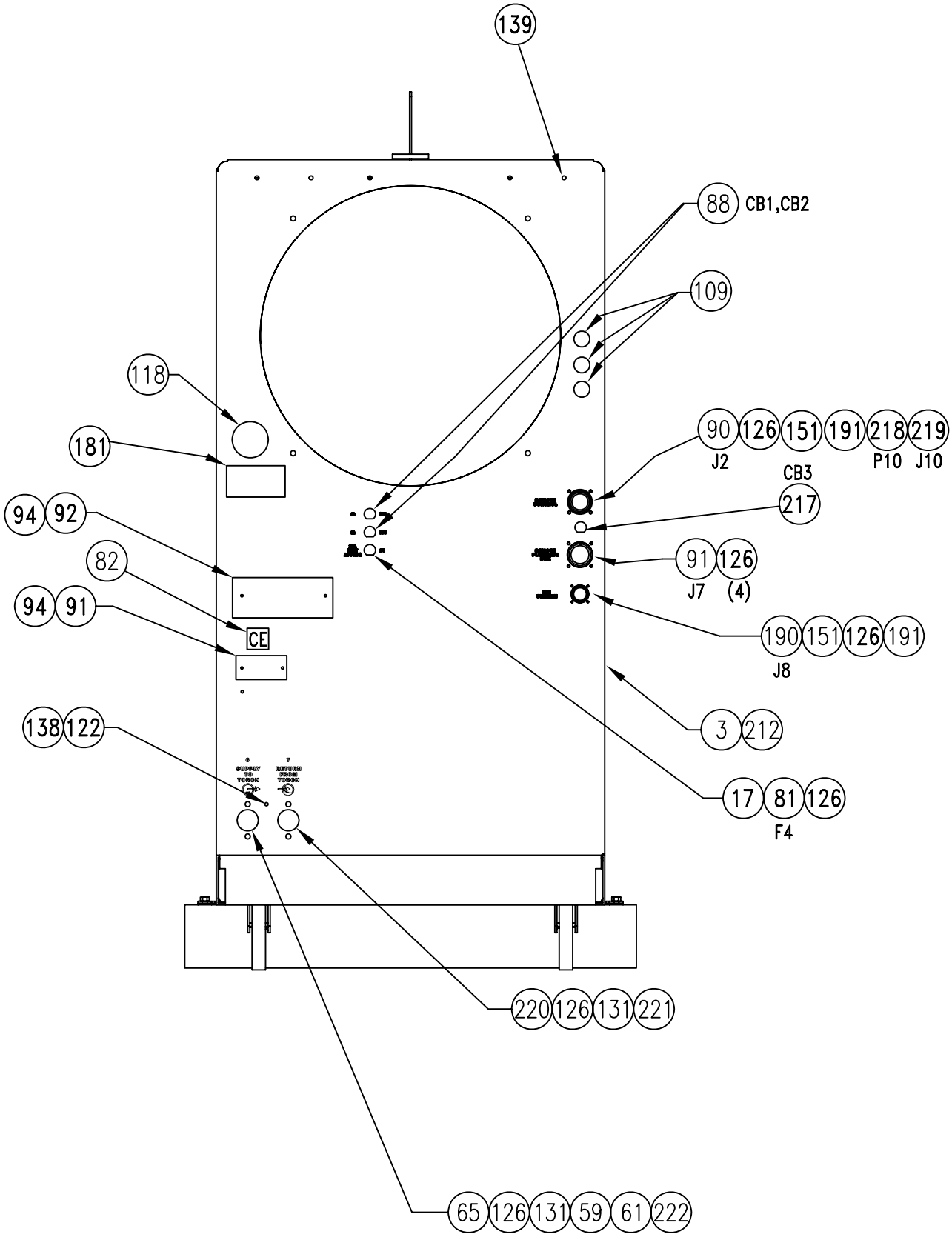
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88 CB1,CB2
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90 126 151 191 218 219
J2
CB3
P10 J10
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F4
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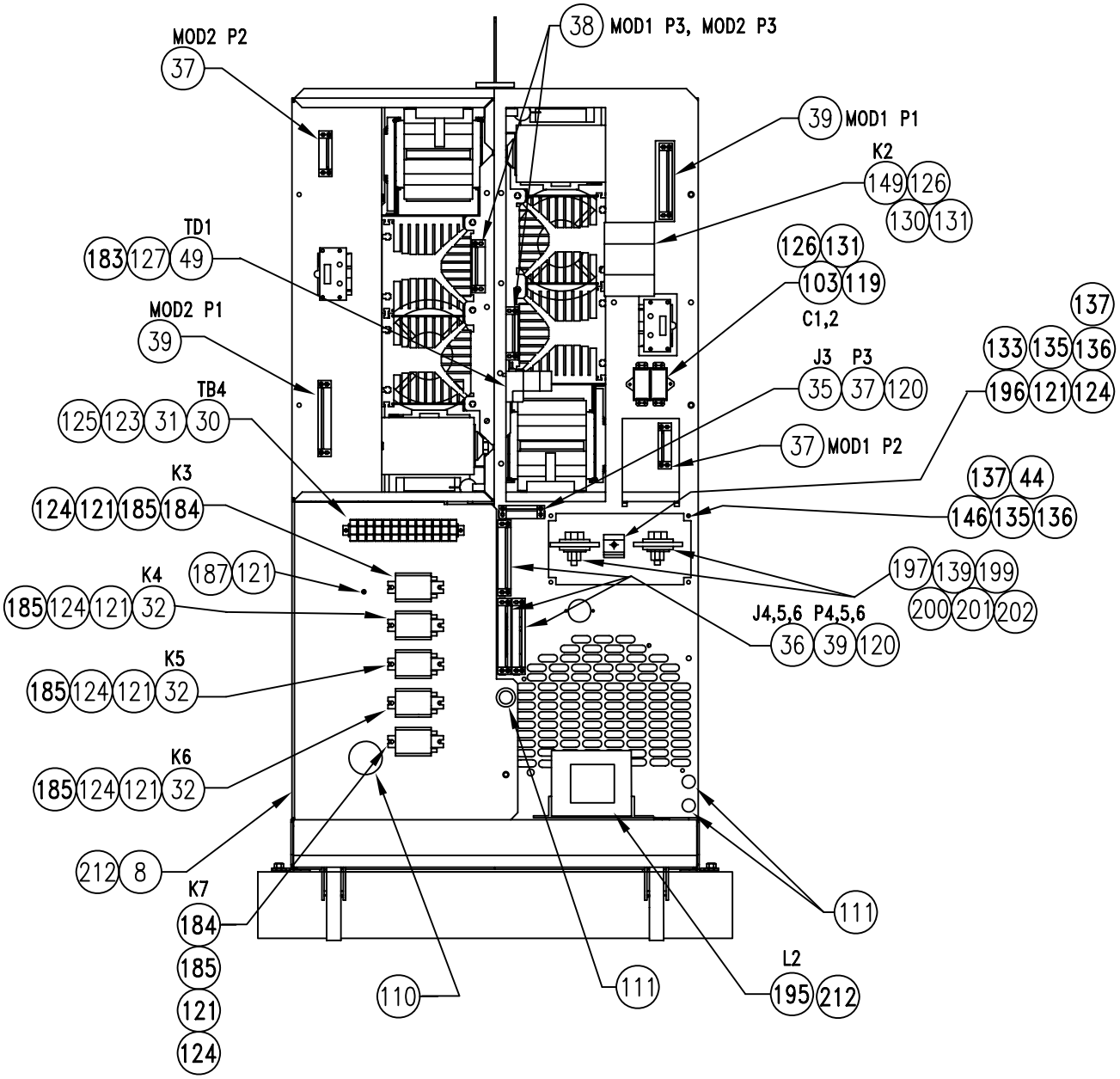
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38 MOD1 P3, MOD2 P3
39 MOD1 P1
K2
149 126
130 131
TD1
183 127 49
126 131
103 119
C1,2
MOD2 P1
39
137
133 135 136
J3 P3
35 37 120
196 121 124
TB4
125 123 31 30
37 MOD1 P2
K3
124 121 185 184
137 44
146 135 136
187 121
197 139 199
K4
185 124 121 32
200 201 202
J4,5,6 P4,5,6
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L2
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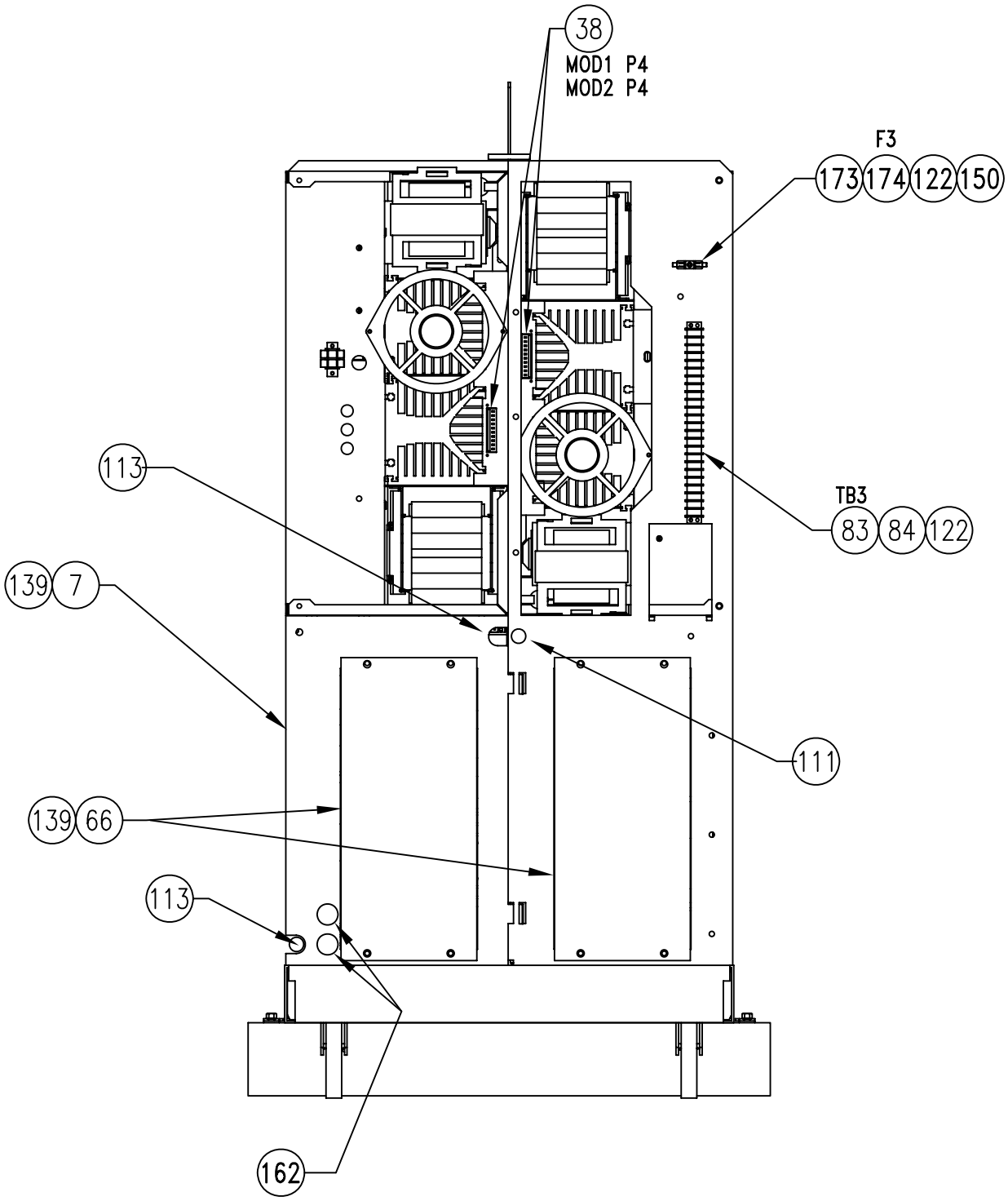
111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MOD1 P4
MOD2 P4
F3
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TB3
83 84 122
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113
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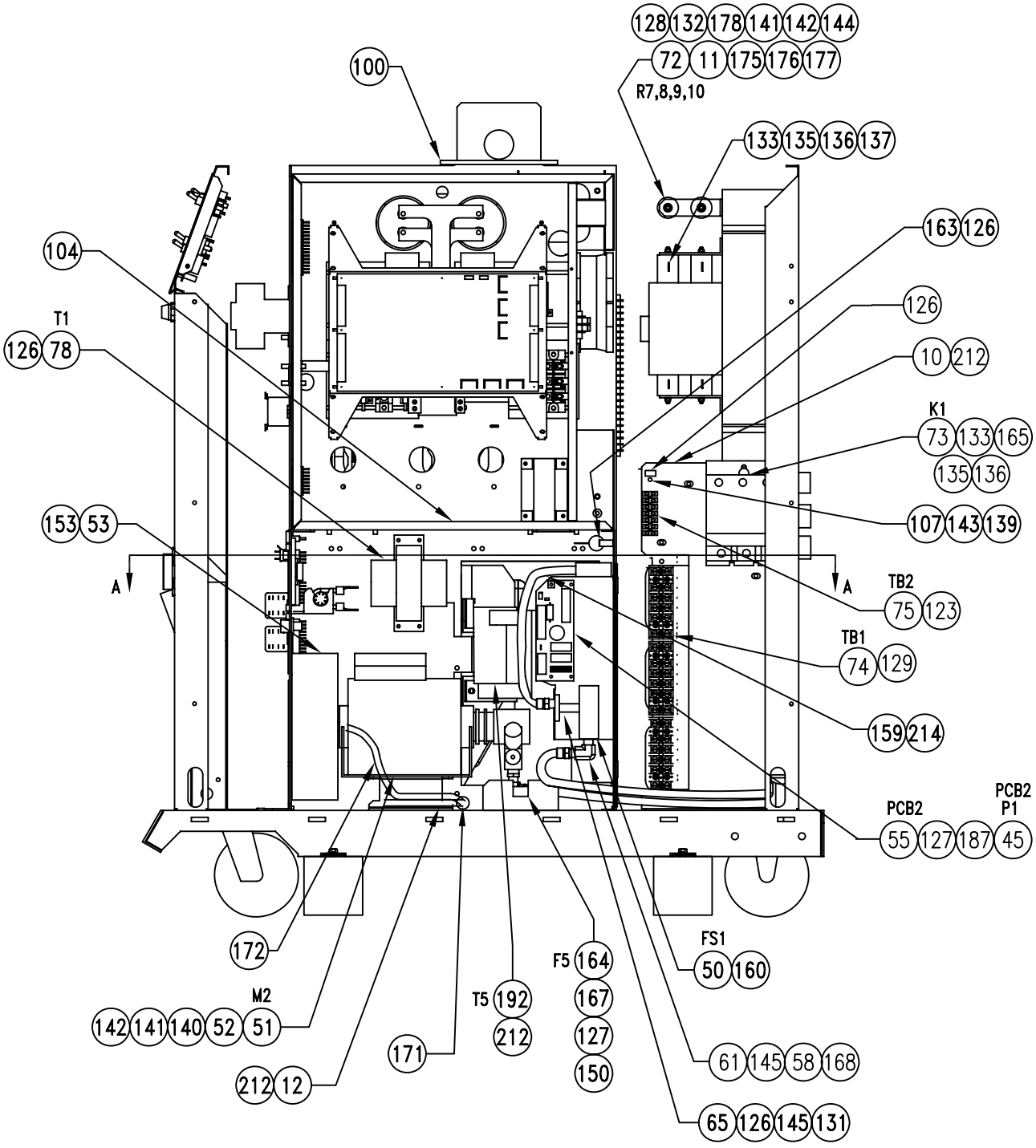
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72 11 175 176 177
R7,8,9,10
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133 135 136 137
163 126
104
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T1
126 78
10 212
K1
73 133 165
135 136
153 53
107 143 139
A
A
TB2
75 123
TB1
74 129
159 214
PCB2
PCB2
P1
55 127 187 45
FS1
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F5 164
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M2
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T5 192
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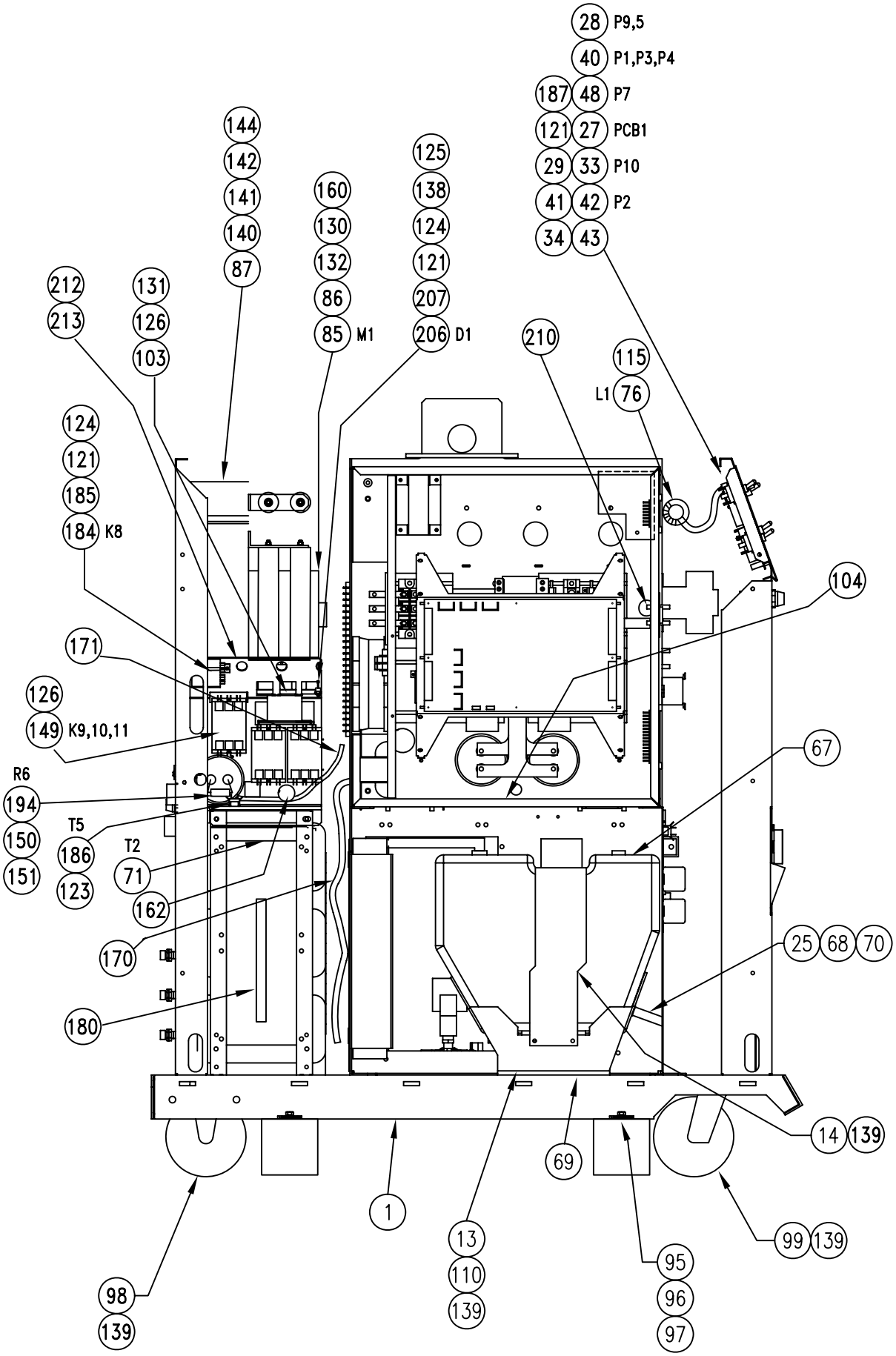
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40 P1,P3,P4
187 48 P7
121 27 PCB1
29 33 P10
41 42 P2
34 43
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130
132
86
85 M1
125
138
124
121
207
206 D1
212
213
131
126
103
210
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L1 76
124
121
185
184 K8
104
171
126
149 K9,10,11
67
R6
194
T5
186
150
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T2
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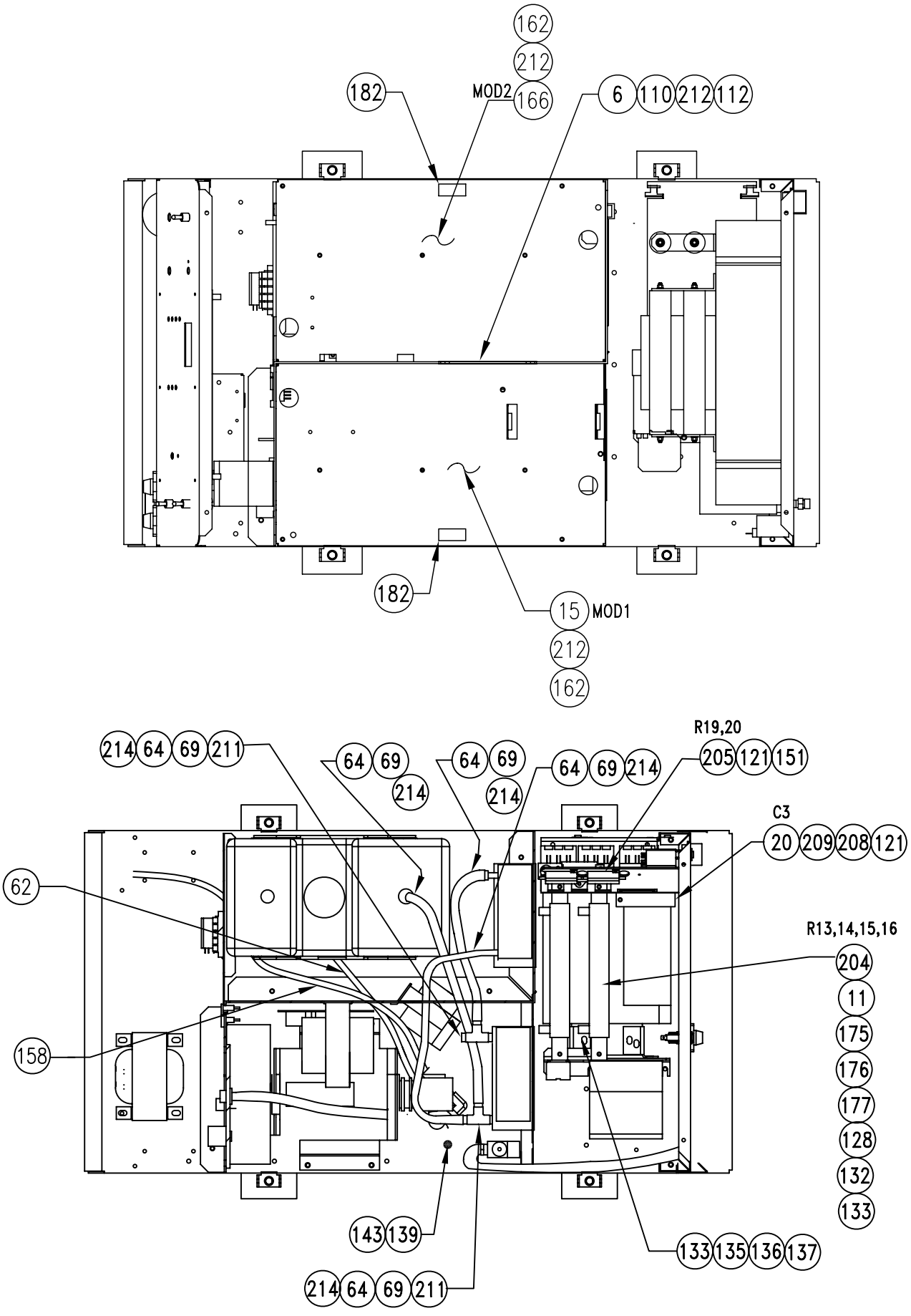
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MOD2
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MOD1
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R19,20
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C3
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R13,14,15,16
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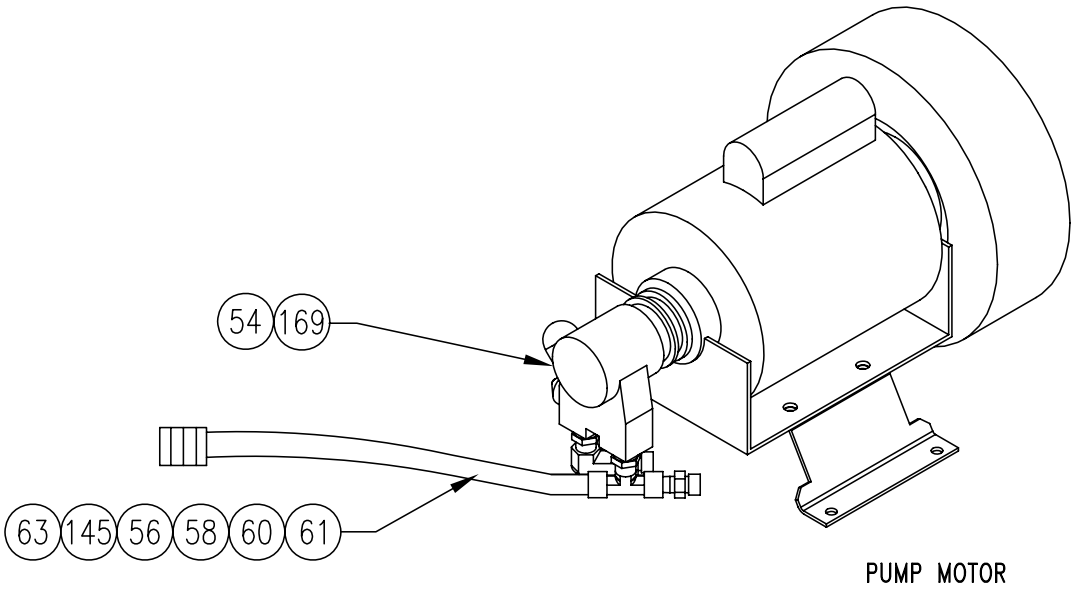
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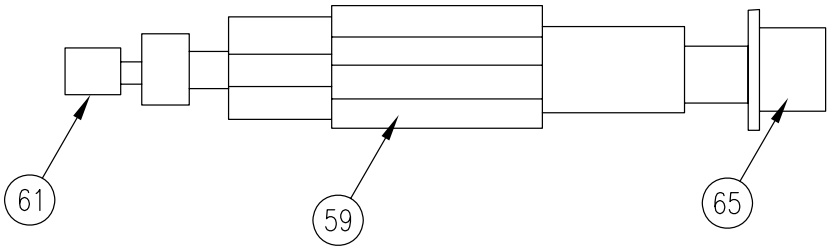
PUMP MOTOR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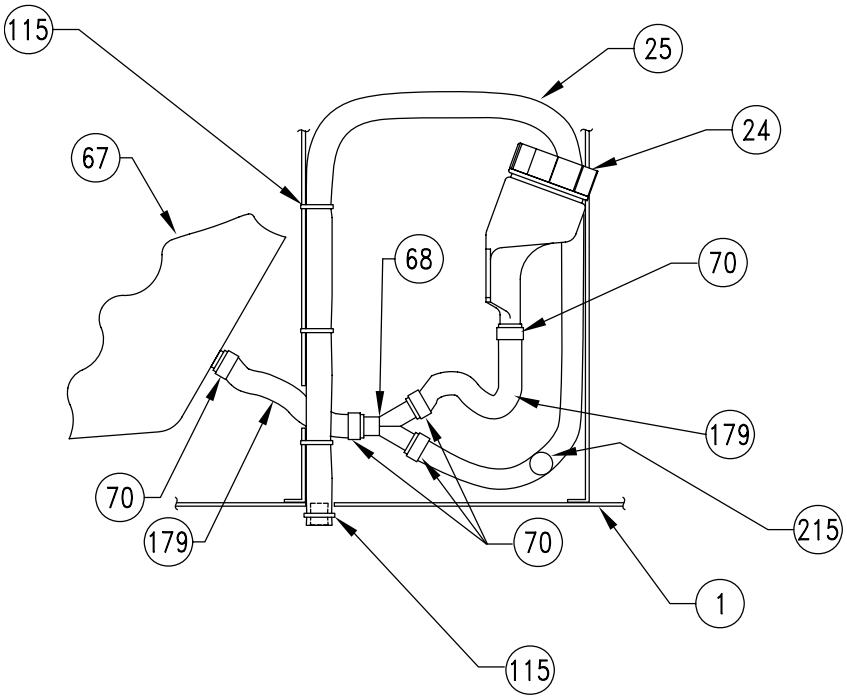
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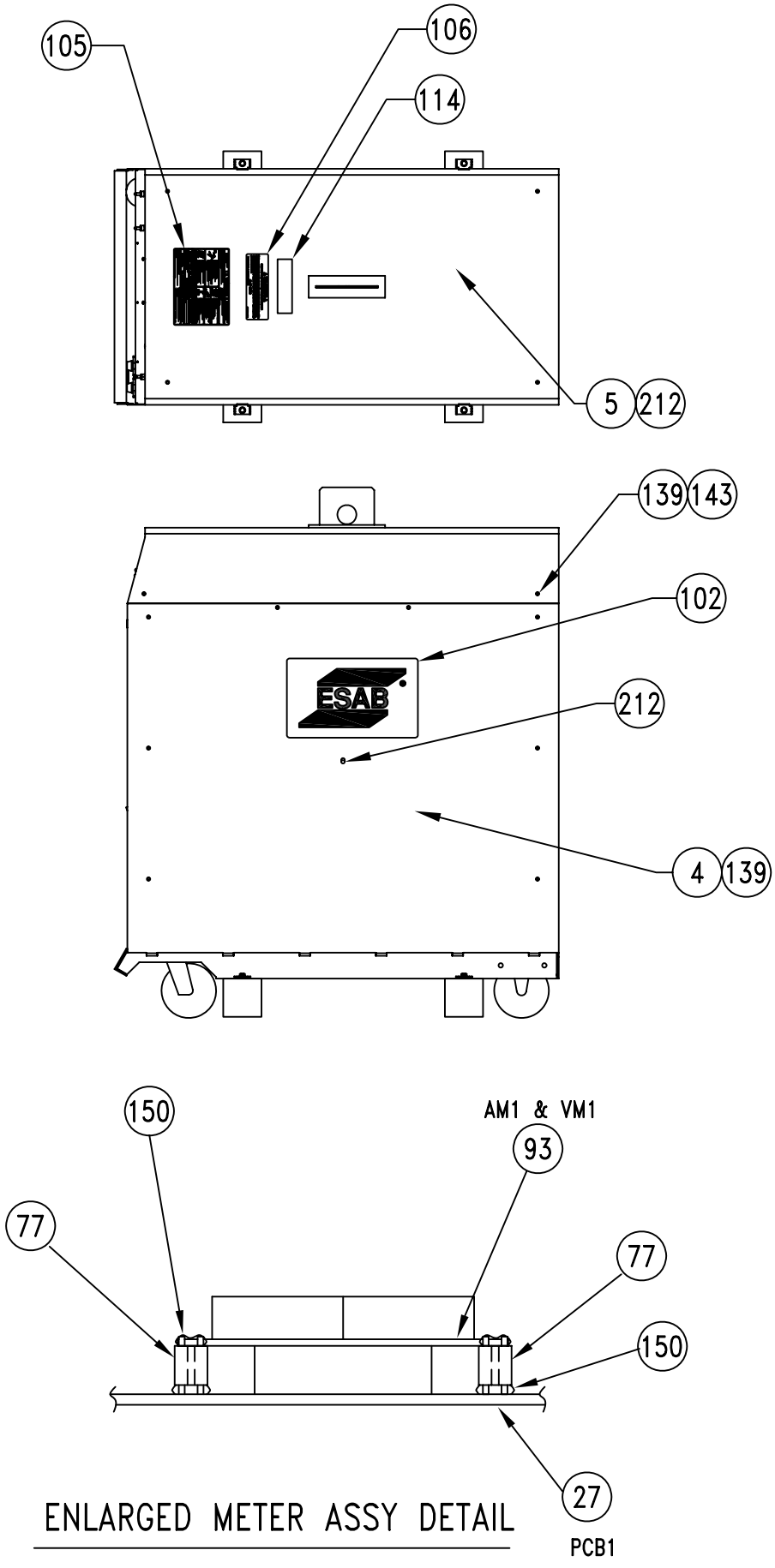

ENLARGED METER ASSY DETAIL

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
	1	35920GY	1	BASE ESP-200i
	2	0558004321G	1	PANEL FRONT EPP-200
	3	0558004322G	1	PANEL REAR EPP-200
	4	35924YL	2	PANEL SIDE
	5	35925YL	1	COVER TOP
	6	35926GY	1	BRACKET "Z"
	7	35930GY	1	BRKT HEAT EXCHANGER
	8	35931GY	1	BAFFLE WATER TANK
	9	36346GY	1	BRKT REMOTE FILLER
	10	0558004325G	1	BRACKET XFMR AUTO EPP-200
	11	679510GY	8	BRKT MTG DUAL RESISTOR
	12	33550	1	BRKT MOTOR
	13	33551	1	BRKT WATER TANK
	14	33556	1	STRAP TANK
MOD1	15	0558004319	1	EPP-200 PWR MOD 100A MASTER
	16	954619	1	OVERLAY 200i
	17	952136	1	FUSE HOLDER PANEL MOUNT
S2	18	13731460	1	SW TGGL 3PDT 2 POS 15A 125V SPD
S1	19	672508	1	SW TGGL 3PST 2 POS 15A 125V Q/D
C3	20	950627	1	CAPACITOR 4200uf 350VAC
S4	21	636702	1	SWITCH TOGGLE DPDT 3POS 15A 125V
R1	22	2062018	1	POT 10K 2W
	23	13730611	1	KNOB
	24	952182	1	SPOUT REMOTE FILLER
	25	90858625	3.67'	TUBING VINYL CLEAR 5/8" ID
	26	0558004488	1	GAUGE 2.00" 200 PSI CBM/FF STL
PCB1	27	0558004656	1	PCB ISOLATION AMP EPP-200
PCB1 P9,5	28	950101	2	HOUSING CONTACT CRIMP 4 PIN
	29	952053	6	STANDOFF #6-32 X 7/8 LG
TB4	30	673168	1	TERM BLOCK 13 POS 20A
	31	2062361	1	TERMINAL STRIP MARKER
K4,5,6	32	950760	3	RELAY ENCLOSE DPDT 24 VAC 10A
PCB1 P10	33	952034	1	PLUG 5 POS
	34	952035	1	COVER PLUG 5 POS
J3	35	2234518	1	RECEPTACLE 8 POS
J4,5,6	36	2234519	3	RECEPTACLE 16 POS
P3,MOD1 P2,MOD2 P2	37	2234520	3	PLUG 8 POS

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
MOD1 P3,MOD2 P3,4	38	2234891	4	PLUG 10 POS
P4,5,6 MOD1 P1,MOD2 P1	39	2234521	5	PLUG 16 POS
PCB1 P1,3,4	40	952030	3	PLUG 18 POS
	41	952031	3	COVER PLUG 18 POS
PCB1 P2	42	952032	1	PLUG 16 POS
	43	952033	1	COVER PLUG 16 POS
PCB3 P1	44	0558004323	1	BOARD TERM OUTPUT EPP-200
PCB3 P1,PCB2 P1	45	951009	2	RECEPTACLE P/C 6 POS 10A 300A
	46	3266	2	BAG CLOTH
	47	37134GY	1	PANEL CONTROL ESP-200
PCB1 P7	48	950096	1	HOUSING CONTACT CRIMP 3 PIN
TD1	49	952252	1	SENSOR CURRENT
FS1	50	950001	1	SWITCH FLOW .25GPM 1000PSI 1/4NPT
M2	51	951215	1	MOTOR CARB 1/3 H/P
	52	951346	1	BLADE FAN 8.75 DIA
	53	36417	1	SHROUD FAN
	54	951068	1	CLAMP V-BAND 1.91 D X .41W
PCB2	55	38131	1	BOARD P/C START UP
	56	68100126	2	REDUCER 3/8 NPT TO 1/4 NPT
	57			
	58	182W82	3	ELBOW 90° 1/4 NPT
	59	21124	1	VALVE CHECK ASSY
	60	950179	1	TEE PIPE BRANCH 1/4 BRS
	61	10Z30	4	ADAPTOR B/A-W M 1/4 NPTM
	62	36418	1	HOSE ASSY TANK BOTTOM - PUMP INLET
	63	36538	1	HOSE ASSY PUMP OUTLET
	64	90858009	4.5'	TBG NYLOBRADE 3/8 ID X .625 OD
	65	58V75	2	ADAPT B/A-W F 1/4 NPTM BKHD
	66	13735961	2	HEAT EXCHANGER
	67	952179	1	TANK WATER
	68	952181	1	"Y" PLASTIC PIPE
	69	13734871	6	CLAMP HOSE W/D .25D-.62D
	70	8994471	5	CLAMP OSE W/D .50D-1.06D
T2	71	36349	1	XFMR AUTO
R7,8,9,10	72	17300008	4	RESISTOR 8 OHM 300W
K1	73	952251	1	CONTACTOR 150A 120VAC
TB1	74	0558004326	3	BLOCK TERMINAL 115A 6 POS

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
TB2	75	952026	1	TERMINAL BLOCK 7 POS 25A 12-18 AWG
L1	76	951198	1	CORE SATURABLE
	77	952095	4	SPACER LED
	78	0558004336	1	WIRE KIT PRI EPP-200
	79	0558004339	1	WIRE KIT LOOSE EPP-200
	80	0558004338	1	WIRE KIT SEC REAR EPP-200
F4	81	952137	2	FUSE 600V 15A FAST ACTING
	82	0558954035	1	LABEL CE LOGO
TB3	83	995103	1	TERMINAL BLOCK 24 POS 15A
	84	50238	1	MARKER TERMINAL STRIP 24 POS
M1	85	2062334	1	MOTOR FAN
	86	673676	1	BLADE FAN
	87	672330GY	1	SHROUD FAN
CB1,2	88	950829	2	CIRCUIT BREAKER 3 AMP
J2	89	599800	1	CONN BOX RECEPT 24 FS SH 24
J7	90	952209	1	CONN BOX RECEPT 19 FS SH
	91	13730763	1	PLATE SERIAL
	92	954570	1	LABEL RATING ESP/EPP-200
AM1,VM1	93	951061	2	METER LED 5 VDC
	94	65509506	4	RIV BLD AL 1/8 GRIP
	95	99512860	4	BOLT LAG 1/4 X 2.00
	96	36635	4	CLIP
	97		1	PALLET
	98	952012	2	CASTER FIXED
	99	952013	2	CASTER SWIVEL
	100	952144	1	GASKET
	101	951474	4	SEAL SWITCH BLACK
	102	13734588	2	LOGO ESAB CLEAR
C1,2,4	103	951161	3	CAPACITOR METPOLY 20uf 120VDC
	104	23604891	2	LABEL WARNING HIGH VOLTAGE RED
	105	2091514	1	LABEL WARNING
	106	995227	1	LABEL WARNING EXPOSED HIGH VOLT
	107	647361	1	LUG TERMINAL 2-8 WIRE 1/4 STUD
	108	676876	1	INSULATOR NOMEX
	109	23610197	3	PLUG HOLE .875DIA .125 CT NYL BK
	110	673038	3	BUSHING SNAP 1.38ID 1.75 MH .45LG
	111	950823	4	BUSHING SNAP

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
	112	647345	2	BUSHING SNAP 1.31 ID 1.50 MH .44 LG
	113	92W57	2	GROMMET RUB .63ID X .88 GD X .06W
	114	99512240	1	LABEL WARNING LIFTING EYE
	115	631507	AR	TYWRAP MEDIUM
	116	182W58	AR	TYWRAP CLAMP STANDARD
	117	950908	AR	CABLE TIE PUSH MOUNT
	118	950219	1	RELIEF STRAIN 2.00 MOUNTING
	119	34887	2	BUS BAR CAP
	120	61325824	AR	SCREW PHTF #4-40 X .25 LG
	121	61325851	AR	SCREW PHTF #6-32 X .38 LG
	122	61325852	AR	SCREW PHTF #6-32 X .50 LG
	123	61325853	AR	SCREW PHTF #6-32 X .63 LG
	124	64304860	AR	WASHER PLAIN #6
	125	64302860	AR	WASHER LOCK #6
	126	2091558	AR	GROUND LABEL
	126	61325878	AR	SCREW #8-32 X .38 LG
	127	61325880	AR	SCREW #8-32 X .50LG
	128	64307887	AR	WASHER EXT TOOTH #8
	129	61325882	AR	SCREW PHTF #8-32 X .75LG
	130	64304887	AR	WASHER PLAIN #8
	131	64302887	AR	WASHER LOCK #8
	132	63300886	AR	NUT HEX #8-32
	133	61325902	AR	SCREW PHTF #10-24 X .50LG
	134	61325903	AR	SCREW PHTF #10-24 X .63LG
	135	64304050	AR	WASHER PLAIN #10
	136	64302920	AR	WASHER LOCK #10
	137	63300916	AR	NUT HEX #10-24
	138	63300862	AR	NUT HEX #6-32
	139	61328087	AR	SCREW HWH 1/4-20 X .50LG
	140	61341089	AR	SCREW HEX HD 1/4-20 X .75LG
	141	64304075	AR	WASHER PLAIN 1/4
	142	64302996	AR	WASHER LOCK 1/4
	143	64307996	AR	WASHER EXT TOOTH LOCK 1/4
	144	63300100	AR	NUT HEX 1/4
	145	9910003	AR	SEALANT PIPE TEFLON
	146	61325904	AR	SCREW PHTF #10-24 X .75LG
	147	61325884	AR	SCREW PHTF #8-32 X 1.00LG
	148	73585980	AR	CMPD ELEC JNT ALCOA 2 EJC

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
K2,9,10,11	149	673458	4	CONTACTOR PILOT ARC 3 POLE 40A
	150	71200732	AR	ADH SIRBR CLR
	151	10981006	AR	SOLDER 60/40
	152	90863004	.70'	TUBING HEATSHRINK .50 ID
	153	61324974	AR	SCREW PHTF #8-32 X 1.25LG
	154	34572	0.2	COUPON TEST STEEL 18 X 5.5 X .5
	155	0558004317	REF	WIRING DIAGRAM EPP-200
	156	0558004316	REF	SCHEMATIC DIAGRAM EPP-200
	157	0558004337	1	WIRE KIT SEC FRONT EPP-200
	158	36423	1	HOSE ASSY PUMP OUT TO GAUGE
	159	36421	1	HOSE ASSY FLOW SWITCH TO CORE IN
	160	950906	4	TERMINAL .250 X 22-18 AWG
	161	90863005	.38	TUBING HEAT SHR POLY 1.50 ID BLK
	162	639533	6	BUSHING SNAP .88ID 1.09 MH .45L
R2	163	17280110	1	RESISTOR 100W 1000HM
F5	164	950228	1	FUSE 4 A 600V
	165	61325910	AR	SCREW PHTF #10-32 X .38
MOD2	166	0558004320	1	EPP-200 PWR MOD 100A SLAVE
	167	951756	1	HOLDER FUSE
	168	34693	1	HOSE ASSY 22.00 IN
	169	951347	1	PUMP CARB W/STRAINER
	170	90862532	2'	TUBING PVC 7/8" ID
	171	90861058	1.5'	TUBING INS VINYL
	172	90861726	.75'	TUBING VINYL .294 ID X .020 W BLK
	173	96W10	1	HOLDER FUSE
	174	2017483	1	FUSE
	175	46N08	8	ROD MTG RESISTOR
	176	647182	16	WSR FLAT 1.25 X .063 MICA
	177	91W19	16	WSR CENTER 1.00 X .063
	178	61341088	AR	SCREW HEX HD 1/4-20 X .63
	179	90858007	1.25'	TUBING BRAIDED 5/8 ID
	180	22993476	1.5'	RUBBER STRIP .188 X .75W
	181	13732733	1	LABEL FOR INSTALL USE
	182	954010	2	LABEL WARNING CAPACITOR
TD1-P1	183	952008	1	HOUSING CRIMP 4 PIN
K3,7,8	184	2080196	3	RELAY ENCLOSED 3PDT 120VAC
	185	673013	12	TERM FAS .187 TS DUAL

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION
TB5	186	950487	1	TERM BLOCK 2 POS
	187	64307860	AR	WSR EXT TOOTH #6
	188	955243	1	LABEL SET EPP-200
S3	189	673213	1	SW, SPST, TGGL
J8	190	182W62	1	CONN. BOX RECPT. 3FS 18S
	191	35N81	27	TUBE .173D X .02W X .75LG VIN
T5	192	37805	1	AUTO XFMR
	193	950995	2	TYWRAP EXTRA-LONG
R6	194	17315247	1	RESISTOR 4.7K OHM 12W
L2	195	647065	1	CHOKE SIGNAL CH-12 15MH
	196	35929	1	BUSBAR INPUT
	197	0558004324	2	TERMINAL OUTPUT EPP-200
PCB3	198	38193	1	PCB TRIM POT
	199	61341195	AR	SCREW HEX HD 1/2-13 X 1.00 LG
	200	64304175	AR	WASHER PLAIN 1/2"
	201	64302175	AR	WASHER LOCK 1/2"
	202	63300183	AR	NUT HEX 1/2-13
	203	950167	3	GROMMET RUB 1.12ID1.50GD X .06W
R13,14,15,16	204	17300020	4	RESISTOR 20 OHM 300W
R19,20	205	17750020	2	RESISTOR 20 OHM 50W NON-INDUCT
D1	206	950703	1	DIODE FWD 1200V *85A
	207	37448	1	BUSBAR DIODE
	208	4600611	.006lb	NOMEX 10MIL X 1.5W
	209	639525	1	BRKT MTG CAPACITOR
	210	594876	1	BUSHING SNAP .75ID 1.00 MH
	211	0558004647	2	TEE NYLON .38X.38X.38 BARBED
	212	61949087	AR	SCR HEX SER WSR HD .250-20X.50
	213	0558004332G	1	PANEL RELAY EPP-200
	214	13736013	6	HOSE CLAMP W/D .31 TO .88
	215	0558005181	1	BALL POLYPROPYLENE ORG .500"DI
	216	61325849	AR	SCR 24006 STLZPC 0.138-32X0.25
CB3	217	0558000433	1	CIRCUIT BREAKER 2 AMP
P10	218	2062348	1	PLUG HOUSING
J10	219	0558001016	1	CAP HOUSING
	220	33033	1	ADAPTOR B/A-WM 1/4 NPTM BKHD
	221	2060366	1	AIR-H20 DUST CAP
	222	951568	1	PLUG 5/8-18 LH
	223	41V12	1	ADAPTOR B/A-WF B/A-WF OLD/NEW

Revision History

Original release February, 2004

May, 2004 - Converted Schematics and Wiring Diagrams to 11' x 17' page size and included at back of manual.

June, 2004 - Updated Options, Accessories and Hose charts on Pages 13 and 14.

November, 2004 - Changed bom item 69 from: clamp hose w/d .25d - .62d qty: 12 to: clamp hose w/d .31d - .88d qty: 6.

February, 2006 - Updated Schematic and Replacement Parts per ECN #053186.

November, 2006 - Updated Replacement Parts

December, 2006 - Updated Replacement Parts

October, 2007 - Updated conductor / fuse table in Subsection 3.4.1. Updated disclaimer page.

D-0558004316

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PUMP MOTOR M2

CB2 3A

T5

575V 460V 415V 380V 230V 200V

TB2

F4 5A

FNT PNL ON/OFF S1

M1

CB1 3A

ZD1,180V

120VAC K1

MOV1 610V MOV2 610V MOV3 610V

øC øB øA

T1 X13 X12 X11 X16 X15 X14 X6 X5 X8 X7 X4 X3 X10 X9 X2 X1

J4 P4

TB1

CH7 CH6 CH5 CH4 CH3B CH3A CH3 CH2 CH1

BH7 BH6 BH5 BH4 BH3B BH3A BH3 BH2 BH1

AH7 AH6 AH5 AH4 AH3B AH3A AH3 AH2 AH1

J3 P3

18VAC 18VAC 18VAC 18VAC 24VAC 24VAC 24VAC 12VAC 120VAC

P10-5 P10-3 P10-4 P2-10 P2-9 P2-8 P2-16 P2-15 P2-14 P2-13 P2-12 P2-11 P2-7 P2-6 P2-5 P2-4 P2-2 P2-1

PCB1 ISOLATION AMPLIFIER AND FAULT SIGNAL PCB 80558004656

P3-1 P3-2

AM1 AMMETER

P8

VM1 VOLTMETER

P6

PLASMA GAS

P9-4 P9-3 P9-2 P9-1

P3-10 P7-1 P7-3 P4-1 P4-2 P4-9 P4-10 P5-1 P5-2 P4-7 P4-8 P4-17 P4-18 P3-15 P1-16 P1-15 P1-9 P1-10 P1-5 P1-6 P1-2 P1-3 P1-7 P1-8 P1-17 P1-18 P3-18(-) P3-17(+) P1-14 P1-13 P3-13 P3-12 P10-1 P10-2 P3-16 P4-14 P4-13 P4-12 P4-11

TB4-2

PCB3 TRIM POT P1-1 P1-6

TB4-4 TB4-5 TB4-1

GAS TEST S4

ZD8 60VAC K5 24VAC RELAY

ZD4 60VAC K4 24VAC RELAY

ZD9 60VAC K6 24VAC RELAY

CB3 2A

J8 A B C

F3

J7 A B C D E F G H J K L M N P R S T U V

J6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DENOTES ESP-200 MODE

P10 B

MOD2 POWER MODULE #2 C-0558004333 SCHEMATIC D-0558004320 ASSEMBLY

FN1-L1 FN1-L2 FN1-L3 TB2-1 TB2-2

TB3-1 SH1-1 SH1-2

P3 P4 P2 P1

TB4-10 R12 39K 2W TB4-9 R11 39K 2W TB4-7

L1 5T

ZD3,180VAC K3 120VAC RELAY

TB5-1

P5 J5 FS1

ZD5,180VAC K7 120VAC RELAY

ZD6,180VAC K8 120VAC RELAY

ZD2 180VAC K2 120VAC RELAY

C1 20uf 400V C2 20uf 400V R5 10K 2W

TB3 J2

P10 J10

START SIGNAL FROM CNC TO P.S., RELAY CLOSING

ARC ON SIGNAL FROM P.S. TO CNC, RELAY CLOSING

ARC ON SIGNAL FROM P.S. TO CNC TRANSISTOR

P.A. HIGH RANGE

P.A. HIGH CURRENT HIGH RANGE

120VAC NEUTRAL

+10VDC REMOTE CURRENT SETTING FROM CNC TO P.S.

VOLTAGE DIVIDER, (+)

VOLTAGE DIVIDER, (-)

H.F. 120VAC

P/S. CONTROLLED

TORCH #2 ACTIVATE 120VAC

EMERGENCY STOP FROM CNC TO P.S. RELAY/CONTACTOR NORMALLY CLOSED OPEN IN CASE OF EMERGENCY

FAULT SIGNAL FROM P.S. TO CNC RELAY CLOSING, DRY CONTACT

120VAC PREFLOW SIGNAL FROM CNC TO P.S.

120VAC VAC HOT UNSWITCHED

BY CUTTING MACHINE GROUP CONNECTOR CHASSIS GND SUPPLIED

TB5-2

ZD7 180VAC K9 120VAC RELAY

ZD10 180VAC K10 120VAC RELAY

ZD11 180VAC K11 120VAC RELAY

H1 L2 H2

R13 20 OHM 300W R14 20 OHM 300W R15 20 OHM 300W R16 20 OHM 300W

C4 20 uF 400V R17 10 KOHM 8W R18 10 KOHM 8W D1

C3 4200uf + 350V R6 4.7K 12W R10 8 OHM 300W R9 8 OHM 300W

R19 20 OHM 50W R8 8 OHM 300W R7 8 OHM 300W R20 20 OHM 50W

FNT PNL LOCAL CURRENT SETTING POT R1 10K

TB4-11 TB4-12 TB4-13 R3 4.99K R4 4.99K

FRONT PNL CURRENT SETTING LOCAL/REMOTE DPDT S2

LO HI FRONT PNL PILOT ARC SELECTOR S3

P2 P1 P3 P4

MOD1 POWER MODULE #1 C-0558004333 SCHEMATIC D-0558004319 ASSEMBLY

TB2-2 TB2-1 FN1-L3 FN1-L2 FN1-L1 SH1-2 SH1-1 TB3-1

B PILOT ARC

TO JUNCTION BOX J1

WORK

TORCH

TD1

P1-2 P1-1 START UP P1-3 PCB2 838131 P1-6 PA

COMPONENT LEGEND

LOCATION NUMBER	ITEM	DESCRIPTION
1	M2	PUMP MOTOR
	T1	XFRM CNTRL, PLASMA INTERFACE
	J3	BLOCK TERM. 8 POS.
	P3	PLUG 8 PIN
	S4	SWITCH GAS TEST DPDT
ZD	8,4,9	DIODE ZENER 62V 5.00W 7.1A
K	5,4,6	RELAY ENCLOSE DPDT 240VAC 20A
	J8	CONN. BOX RECPT. 3FS 18S
	CB3	CIRCUIT BREAKER 3A
	F3	FUSE 1 AMP 250V
	J7	RECPT 19 POS
	J6	RECPT 16 POS
2	CB2	CIRCUIT BREAKER 3AMP
	TB2	TERM. STRIP
	T5	AUTO XFMR
	PCB1	P/C BRD ISOLATON AMPL & FAULT SIGNAL
MOD2	P3,4	PLUG 10 PIN
MOD2	P2	PLUG 8 PIN
MOD2	P1	PLUG 16 PIN
	TB3	TERM. BRD 24 POS 15AMP
	J2	RECPT PANEL 14 PIN
3	F4	FUSE 15A 600VAC FAST ACTING
	PS3	SWITCH PRESSURE
	J4	RECPT PANEL 16 PIN
	P4	PLUG 16 PIN
	L1	CORE SATURABLE
R	11,12	RES CM FILM AL 2W 39K 5%
4	S1	SWITCH TGGL 3PST 2 POS 15A 125V
	M1	MOTOR FAN
	CB1	CIRCUIT BREAKER 3 AMP
	AM1	AMMETER
	VM1	VOLTMETER
	P5	PLUG 16 PIN
	J5	RECPT 16 POS
	FS1	FLOW SWITCH
ZD	5,6,2	ZENER DIODE 180V
K	5,6,2	RELAY 120 VAC
	C1,2	CAPACITOR 20uF 400V
	R3,4,11	RES. 10K 2W
ZD	7,10,11	ZENER DIODE 180V
K		RELAY 120 VAC
5	T2	AUTO XFRM
MOV	1,2,3	VARISTOR METAL OXIDE 625V
	PCB3	TRIM POT
	R3,4	RES. CM FILM AL .50W 1% 4.99K
	S2	SWITCH TGGL DPDT 2 POS 15A
	R1	POT. 10K 2W
	C4	CAPACITOR METPOLY 20uf 120VDC
	D1	RECTIFIER SILICON FORWARD 85A
R	18,17	RESISTOR 10 OHM 8W
	C3	CAPACITOR 4200uF 350V
R	10,9	RESISTOR 8 OHM 300W
	R6	RESISTOR 4.7K 12W
R	13,14,15,16	RESISTOR 20 OHM 300W
	L2	INDUCTOR
6	TB1	TERMINAL BOARD
MOD1	P1	PLUG 16 PIN
MOD1	P2	PLUG 8 PIN
MOD1	P3,4	PLUG 10 PIN
	S3	SWITCH TGGL 3PST 2 POS 15A 125V
	PCB2	P/C BRD START UP
R	19,20	RESISTOR 20 OHM 50W
R	8,7	RESISTOR 8 OHM 300W
	R2	RESISTOR 100 OHM 100W
	F5	FUSE 4 AMP 600V
	TD1	CURRENT SENSOR

REFERENCE DRAWINGS:

D-0558004317 WIRING DIAG EPP-200
A-0558004337 WIRE KIT SEC FRONT EPP-200
A-0558004336 WIRE KIT PRI EPP-200
A-0558004339 WIRE KIT LOOSE EPP-200
A-0558004338 WIRE KIT SEC REAR EPP-200

M	LTR	CHANGE	BY	DATE	CHK'D
	B	CN-063149	JDW	10/16/06	MEA
	A	CN-153186	TDG	2/24/06	MEA

ENGLISH DWG. UNLESS OTHERWISE SPECIFIED, DIM ARE IN INCHES. TOL .XX ± .015 .XXX ± .005 ANGLES ± 1° CHAMFERS & C'SINKS ±2° SURFACE ROUGHNESS IS IN MICROINCHES. REMOVE ALL BURRS BREAK SHARP EDGES

SCALE NONE

FIRST MADE FOR EPP-200

DRAWN BY BLP DATE 1/13/04

CHECKED BY DTW DATE 1/21/04

APPROVED BY DTW DATE 1/21/04

PA-6900-03-19 RELEASED FOR 11/13/03 DATE

ESAB WELDING & CUTTING PRODUCTS FLORENCE SC 29501

TITLE SCHEMATIC DIA EPP-200

REPRO MADE FROM

SIMILAR TO D-0558004317

SUP.

SUP. BY

D-0558004316

MAR 1998

D-0558004317

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BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION

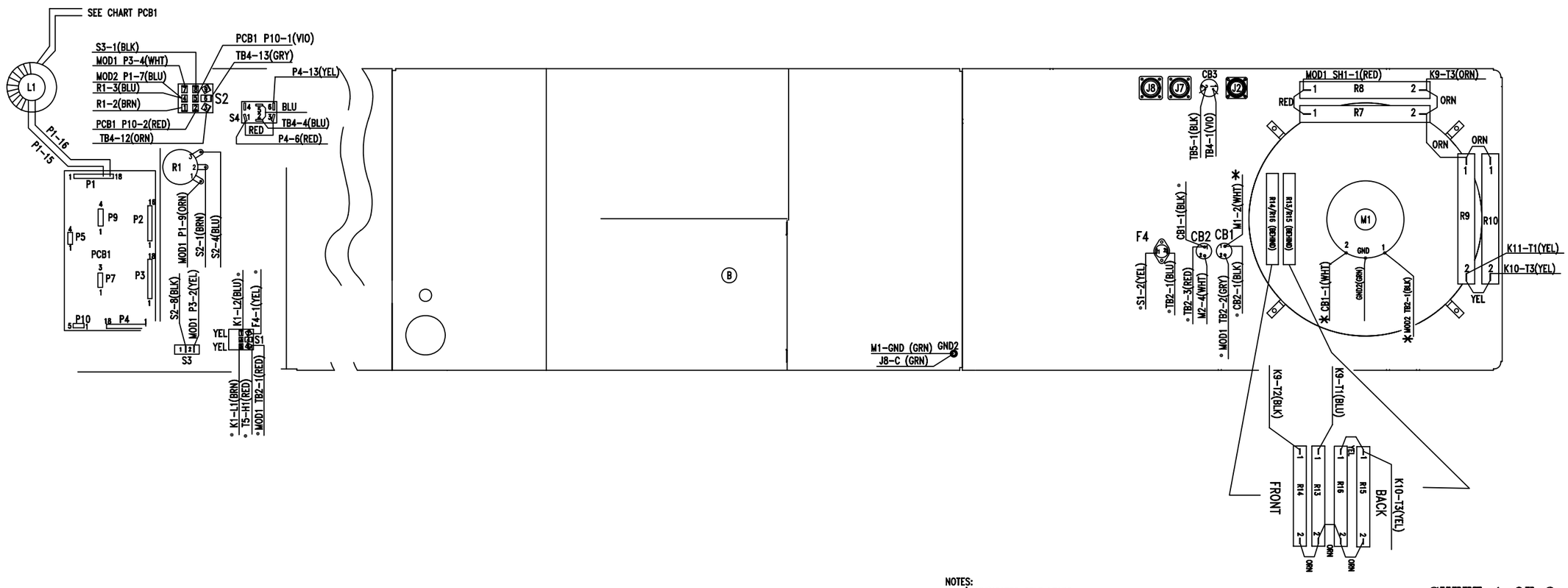
PCB1							
P1	P2	P3	P4	P5	P7	P9	P10
1	1 K4-1(YEL)	1 P4-11(GRY)	1 MOD2 P3-1(BRN)	1 MOD2 P3-5(BLK)	1 P4-14(WHT)	1 TD1-4(BLK)	1 S2-5(VIO)
2 P5-10(BRN)	2 P4-9(WHT)	2 P4-12(BLU)	2 MOD2 P3-2(GRY)	2 MOD2 P3-6(VIO)	2	2 TD1-3(RED)	2 S2-2(RED)
3 P5-11(RED)	3		3		3 TB4-10(YEL)	3 TD1-2(GRN)	3 P3-7(RED)
4	4 P4-8(ORN)	4	4			4 TD1-1(WHT)	4 P3-6(WHT)
5 PCB1 P1-6(BLK)	5 P4-7(ORN)	5	5				5 P3-8(WHT)
6 PCB1 P1-5(BLK)	6 MOD1 P2-3 (BLU)	6	6				
7 P5-15(BLK)	7	7	7 MOD2 P3-7(BLU)				
8 P5-16(BLK)	8 P3-3(GRY)	8	8 MOD2 P3-8(GRY)				
9 P5-1(GRY)	9 P3-4(BLK)	9	9 MOD2 P3-3(ORN)				
10 P5-2(YEL)	10 P3-5(GRY)	10 MOD1 P2-2(VIO)	10 MOD2 P3-4(WHT)				
11	11 P4-4(BRN)	11	11 MOD1 P3-7(RED)				
12	12 P4-3(BRN)	12 MOD1 P1-3(BRN)	12 MOD1 P3-8(BLK)				
13 MOD1 P1-5(BLK)	13 P4-2(BLU)	13 MOD1 P1-4(WHT)	13 MOD1 P3-9(VIO)				
14 MOD1 P1-6(RED)	14 P4-1(BLK)	14	14 MOD1 P3-10(YEL)				
15 MOD1 P1-2(VIO)	15 P3-1(YEL)	15 MOD2 P1-4(RED)	15				
16 MOD2 P1-1(VIO)	16 P3-2(YEL)	16 K3-8(ORN)	16				
17 PCB1 P1-18(BLK)		17 PCB3 P1-1(BLK)	17 MOD2 P3-9(WHT)				
18 PCB1 P1-17(BLK)		18 MOD1 P1-7(BLU)	18 MOD2 P3-10(BLK)				

Ⓑ

J7	
A	J6-1(GRY)
B	J6-2(YEL)
C	J4-5(VIO)
D	J4-6(WHT)
E	J6-5(RED)
F	J6-6(VIO)
G	J6-7(BLU)
H	J6-8(BRN)
J	J6-9(YEL)
K	J6-10(BLK)
L	J6-11(BLK)
M	J6-12(WHT)
N	J6-13(ORN)
P	J4-13(GRY)
R	J6-15(BRN)
S	J6-16(BRN)
T	F3-2(RED)
U	MOD1 P4-8(BLK)
V	J6-14(VIO)

Ⓑ

J8	
A	K6-4 (RED)
B	K6-6 (BLU)
C	GND2 (GRN)



NOTES:
1. ✱ INDICATES SELF LEADS.
2. ◦ INDICATES 16 GA WIRE
3. ▲ INLINE SPLICE

REFERENCE DRAWINGS:

D-0558004333 SCHEM DIAG EPP-200
A-0558004337 W K SEC FRONT EPP-200
A-0558004336 WIRE KIT PRI EPP-200
A-0558004339 W K LOOSE EPP-200
A-0558004338 W K SEC REAR EPP-200

SHEET 1 OF 3

M	LTR	CHANGE	BY	DATE	CHK'D
	B	CN-063149	JDW	10/16/15	MEA
	A	CN-053069	JDW	7-29-15	MEA

ENGLISH DWG.
UNLESS OTHERWISE SPECIFIED, DIM ARE IN INCHES.
TOL . XX ± .015
.XXX ± .005
ANGLES ± 1°
CHAMFERS & C'SINKS ±2°
SURFACE ROUGHNESS IS IN MICRODINCHES.
REMOVE ALL BURRS
BREAK SHARP EDGES

PA-6900-03-19 — 11/13/03
RELEASED FOR — DATE

ESAB WELDING & CUTTING PRODUCTS
FLORENCE SC 29501

TITLE
WIRING DIAGRAM EPP-200

REPRO MADE FROM
SCALE NONE — SIMILAR TO
FIRST MADE FOR EPP-200 — SUP.

DRAWN	CHECKED	APPROVED	SUP. BY
BY BLP	BY DTW	BY DTW	D-0558004317
DATE 12/1/03	DATE 12/5/03	DATE 12/5/03	

OCT 1998

D-0558004317

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BILL OF MATERIALS

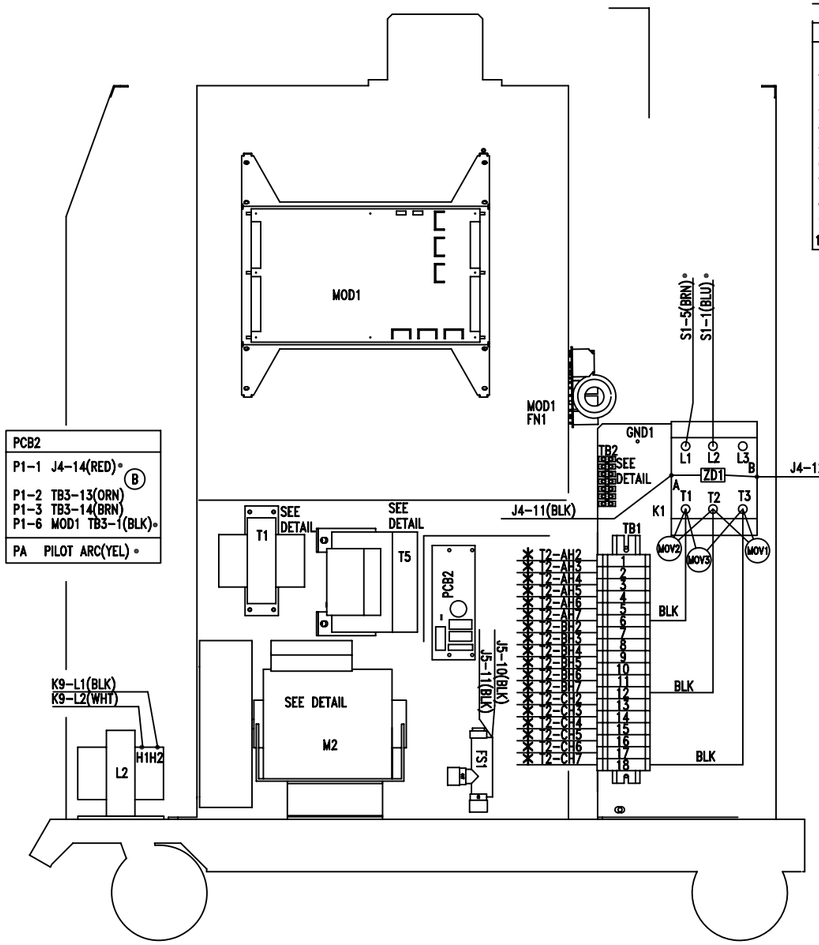
QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

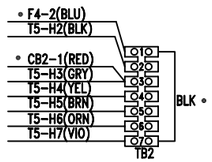
SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION

MOD1					
P4		FN1-LINE		TB2	
1		L1	T2-AH3A(BLK)	1	MOD2 TB2-1(RED) •
2	TB3-8(YEL)	L2	T2-BH3A(BLK)		M2-1(RED) •
	K9-A(YEL)	L3	T2-CH3A(BLK)		S1-6(RED) •
3	TB3-9(BLU)			2	MOD2 TB2-2(GRY) •
4	TB5-1(BLK)				CB1-2(GRY) •
5	TB3-11(RED)				
6	TB3-12(VIO)				
7	F3-1(RED)				
8	J7-U(BLK)				
9	TB3-18(VIO)				
10	TB3-19(YEL)				

MOD2					
P4		FN1-LINE		TB2	
1	TB3-1(BRN)	L1	T2-AH3B(BLK)	1	MOD1 TB2-1(RED)
2	TB3-2(GRY)	L2	T2-BH3B(BLK)		M1-1(BLK) *
3	TB3-3(ORN)	L3	T2-CH3B(BLK)	2	MOD1 TB2-2(GRY) •
4	TB3-4(VIO)				
5	TB3-5(BLK)				
6	TB3-6(WHT)				
7	TB3-20(BLU)				
8	TB3-21(GRY)				
9	TB3-22(WHT)				
10	TB3-23(BRN)				

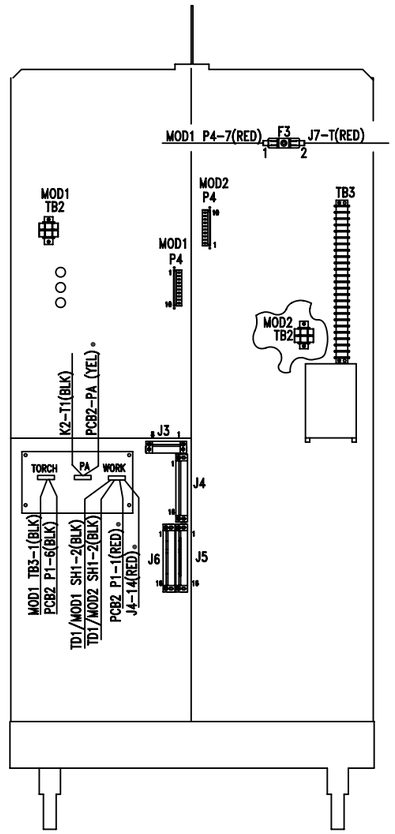
PCB2	
P1-1	J4-14(RED) • (B)
P1-2	TB3-13(ORN)
P1-3	TB3-14(BRN)
P1-6	MOD1 TB3-1(BLK) •
PA	PILOT ARC(YEL) •





J3	
1	T1-X5(YEL) *
2	T1-X6(YEL) *
3	T1-X14(GRY) *
4	T1-X15(BLK) *
5	T1-X16(GRY) *
6	T1-X11(WHT) *
7	T1-X12(RED) *
8	T1-X13(WHT) *

J4	
1	T1-X8(BLU) *
2	T1-X7(BLU) *
3	T1-X4(BRN) *
4	T1-X3(BRN) *
5	J7-C(VIO)
6	J7-D(WHT)
7	T1-X10(ORN) *
8	T1-X9(ORN) *
9	T1-X2(VIO) *
10	T1-X1VIO) *
11	K1-A(BLK)
12	K1-B(BLU)
13	J7-P(GRY)
14	WORK (RED) •
15	
16	

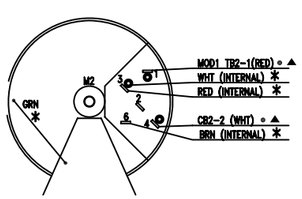


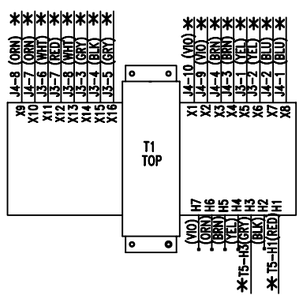
REAR VIEW
WITH REAR PANEL
REMOVED

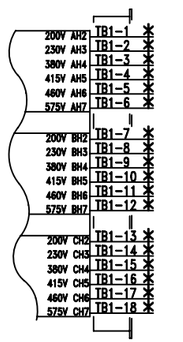
(B)

J5	
1	J5-2(GRY)
2	J5-1(GRY)
3	J5-4(YEL)
4	J5-3(YEL)
5	
6	
7	
8	
9	
10	FS1-1 SPLICE(BLK)
11	FS1-2 SPLICE(BLK)
12	TB3-16(WHT)
13	TB3-15(RED)
14	
15	J5-16(BRN)
16	J5-15(BRN)

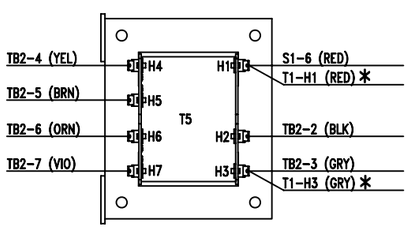
J6	
1	J7-A(GRY)
2	J7-B(YEL)
3	
4	
5	J7-E(RED)
6	J7-F(VIO)
7	J7-G(BLU)
8	J7-H(BRN)
9	J7-J(YEL)
10	J7-K(BLK)
11	J7-L(BLK)
12	J7-M(WHT)
13	J7-N(ORN)
14	J7-V(VIO)
15	J7-R(BRN)
16	J7-S(BRN)







T2
VIEWED FROM FRONT
OF MACHINE



	B	SEE PAGE 1			
M	LTR	CHANGE	BY	DATE	CHK'D

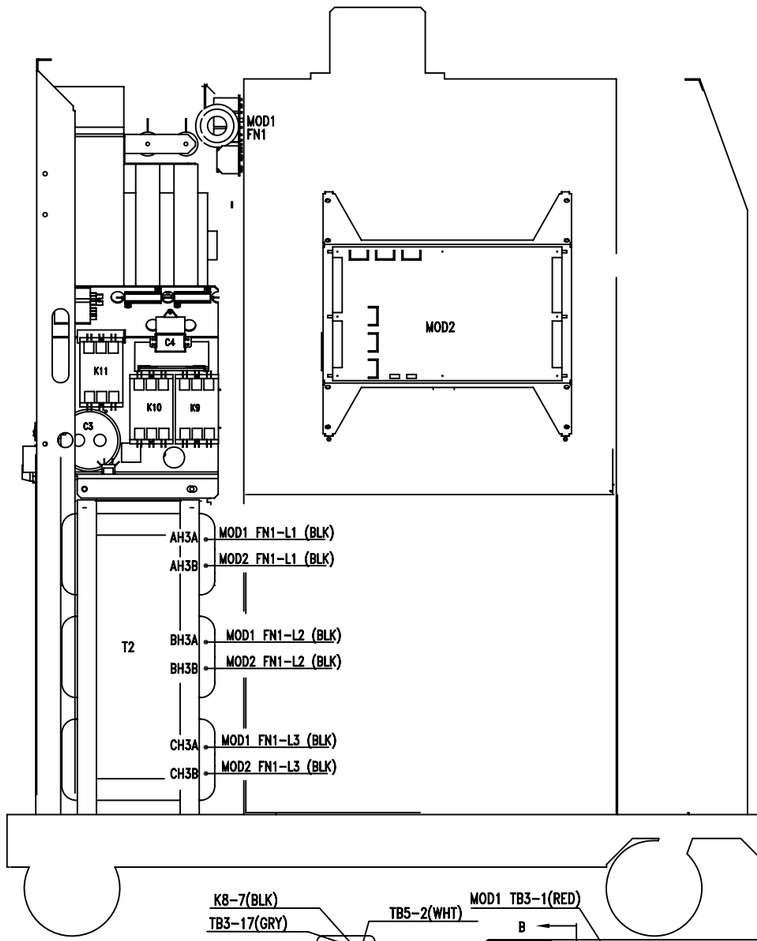
SHEET 2 OF 3

ENGLISH DWG. UNLESS OTHERWISE SPECIFIED, DIM ARE IN INCHES. TOL .XX ± .015 .XXX ± .005 ANGLES ± 1° CHAMFERS & C'SINKS 45° SURFACE ROUGHNESS IS IN MICROINCHES. REMOVE ALL BURRS BREAK SHARP EDGES	PA-6900-03-19	11/13/03
	RELEASED FOR	DATE
	ESAB WELDING & CUTTING PRODUCTS FLORENCE SC 29501	
	TITLE WIRING DIAGRAM EPP-200	
	REPRO MADE FROM	
SCALE NONE	SIMILAR TO	
FIRST MADE FOR EPP-200		SUP.
DRAWN BY BLP DATE 12/1/03	CHECKED BY DTW DATE 12/5/03	APPROVED BY DTW DATE 12/5/03
		SUP. BY
		D-0558004317

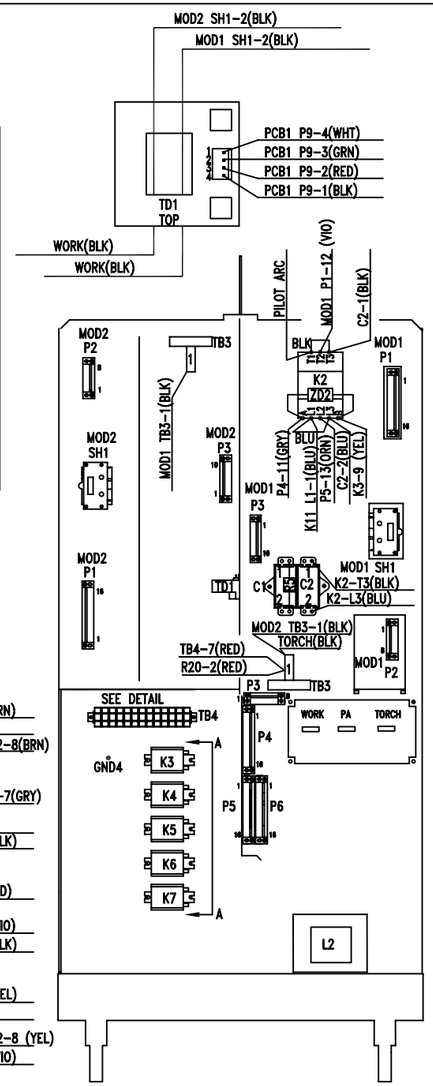
OCT 1995

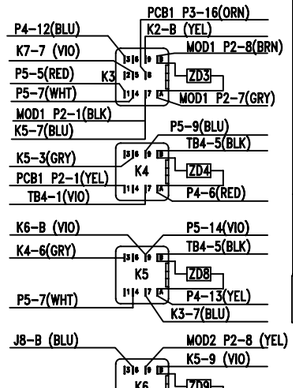
D-0558004317

THIS DRAWING CONTAINS PROPRIETORIAL INFORMATION OF ESAB WELDING & CUTTING PRODUCTS AND IS LOANED WITH THE EXPRESS AGREEMENT THAT THIS DRAWING (1) WILL NOT BE REPRODUCED OR COPIED, (2) WILL NOT BE USED OTHER THAN IN WORK FOR ESAB WELDING & CUTTING PRODUCTS AND (3) WILL NOT BE DISCLOSED EXCEPT TO EMPLOYEES OF THE PARTY TO WHOM THIS DRAWING IS LOANED AND ON A CONFIDENTIAL BASIS.

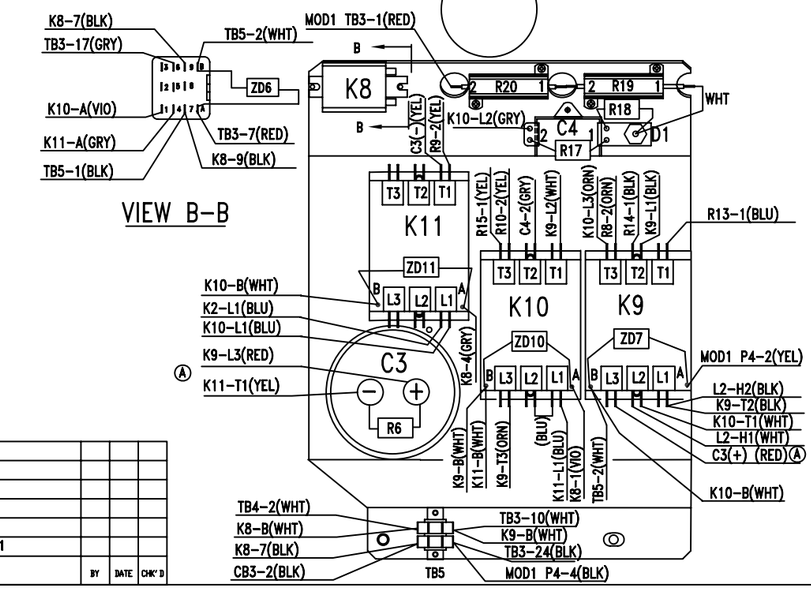


MOD2							
P1		P2		P3		SH1	
1	PCB1 P1-16(VIO)	1		1	PCB1 P4-1(BRN)	1	
2	MOD1 P1-1(GRY)	2		2	PCB1 P4-2(GRY)	2	TD1/WORK(BLK)
3	K7-4(BRN)	3		3	PCB1 P4-9(ORN)		
4	PCB1 P3-15(RED)			4	PCB1 P4-10(WHT)		
5		4	MOD2 P2-5(WHT)	5	PCB1 P5-1(BLK)		
6	MOD2 P2-6(ORN)	5	MOD2 P2-4(WHT)	6	PCB1 P5-2(VIO)		
7	MOD1 P1-7(BLU)	6	MOD2 P1-6(ORN)	7	PCB1 P4-7(BLU)		
	S2-4(BLU)	7		8	PCB1 P4-8(GRY)		
8	MOD1 P1-8(YEL)	8	K6-9(YEL)	9	PCB1 P4-17(WHT)		
9				10	PCB1 P4-18(BLK)		
10							
11							
12							
13	K6-7(WHT)						
14							
15							
16	MOD2 P2-6(ORN)						

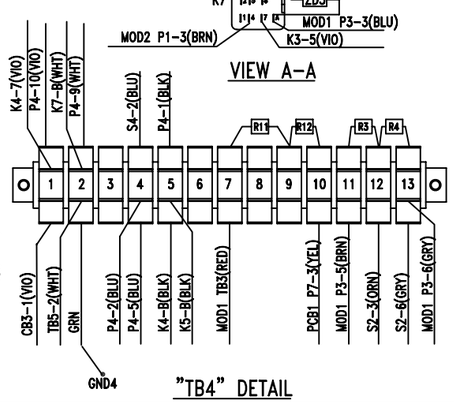




VIEW A-A



VIEW B-B



"TB4" DETAIL

BILL OF MATERIALS

QUANTITIES ARE IN U/M ESTIMATED BY INVENTORY

SYMBOL	ITEM NO.	PART OF CODE NO.	QTY.	DESCRIPTION

MOD1							
P1		P2		P3		SH1	
1	MOD2 P1-2(GRY)	1	K3-7(BLK)	1		1	R8-1(RED)
2	PCB1 P1-15(VIO)		P5-8(BLK)	2	S3-2(YEL)	2	TD1/WORK(BLK)
3	PCB1 P3-12(BRN)	2	P5-6(VIO)	3	K7-A(BLU)		
4	PCB1 P3-13(WHT)		PCB1 P3-10(VIO)	4	S2-7(WHT)		
5	PCB1 P1-13(BLK)	3	P5-9(BLU)	5	TB4-11(BRN)		
6	PCB1 P1-14(RED)		PCB1 P2-6(BLU)	6	TB4-13(GRY)		
	P5-4(GRY)	4		7	PCB1 P4-11(RED)		
7	MOD2 P1-7(BLU)	5		8	PCB1 P4-12(BLK)		
	PCB1 P3-18(BLU)	6	P5-3(ORN)	9	PCB1 P4-13(VIO)		
8	MOD2 P1-8(YEL)	7	K3-A(GRY)	10	PCB1 P4-14(YEL)		
	PCB3 P1-6(YEL)	8	K3-B(BRN)				
9	R1-1(ORN)						
10							
11	P5-12(WHT)						
12	K2-T2(VIO)						
13							
14							
15							
16							

P3	
1	PCB1 P2-15(YEL)
2	PCB1 P2-16(YEL)
3	PCB1 P2-8(GRY)
4	PCB1 P2-9(BLK)
5	PCB1 P2-10(GRY)
6	PCB1 P10-4(WHT)
7	PCB1 P10-3(RED)
8	PCB1 P10-5(WHT)

P4	
1	PCB1 P2-14(BLK)
	TB4-5(BLK)
2	PCB1 P2-13(BLU)
	TB4-4(BLU)
3	PCB1 P2-12(BRN)
4	PCB1 P2-11(BRN)
5	TB4-4(BLU)
6	S4-1(RED)
	K4-A(RED)
7	PCB1 P2-5(ORN)
8	PCB1 P2-4(ORN)
9	PCB1 P2-2(WHT)
	TB4-2(WHT)
10	TB4-1(VIO)
11	K2-A(GRY)
	PCB1 P3-1(GRY)
12	PCB1 P3-2(BLU)
	K3-3(BLU)
13	S4-6(YEL)
	K5-A(YEL)
14	PCB1 P7-1(WHT)
15	
16	

P5	
1	PCB1 P1-9(GRY)
2	PCB1 P1-10(YEL)
3	MOD1 P2-6(ORN)
4	MOD1 P1-6(GRY)
5	K3-1(RED)
6	MOD1 P2-2(VIO)
	P5-14(VIO)
7	K3-4(WHT)
	K5-4(WHT)
8	MOD1 P2-1(BLK)
	K6-A (BLK)
9	MOD1 P2-3(BLU)
	K4-9(BLU)
10	PCB1 P1-2(BRN)
11	PCB1 P1-3(RED)
12	MOD1 P1-11(WHT)
13	K2-L2(ORN)
14	P5-6 (VIO)
	K5-9 (VIO)
15	PCB1 P1-7(BLK)
16	PCB1 P1-8(BLK)

B	SEE PAGE 1			
M	LTR	CHANGE	BY	DATE	CHK'D

SHEET 3 OF 3

ENGLISH DWG. UNLESS OTHERWISE SPECIFIED, DIM ARE IN INCHES. TOL. .XX ± .015 .XXX ± .005 ANGLES ± 1° CHAMFERS & C'SINKS ±2° SURFACE ROUGHNESS IS IN MICRONINCHES. REMOVE ALL BURRS BREAK SHARP EDGES	PA-6900-03-19	11/13/03
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	REPRO MADE FROM	
SCALE NONE	SIMILAR TO	
FIRST MADE FOR EPP-200		SUP.
DRAWN BY BLP DATE 12/1/03	CHECKED BY DTW DATE 12/5/03	APPROVED BY DTW DATE 12/5/03 / SUP. BY
		D-0558004317

OCT 1995

ESAB Welding & Cutting Products, Florence, SC Welding Equipment
COMMUNICATION GUIDE - CUSTOMER SERVICES

A. CUSTOMER SERVICE QUESTIONS:
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B. ENGINEERING SERVICE:
Telephone: (843) 664-4416 / Fax : (800) 446-5693 **Hours: 7:30 AM to 5:00 PM EST**
Warranty Returns **Authorized Repair Stations** **Welding Equipment Troubleshooting**

C. TECHNICAL SERVICE:
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Part Numbers **Technical Applications** **Specifications** **Equipment Recommendations**

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Training School Information and Registrations

G. WELDING PROCESS ASSISTANCE:
Telephone: (800) ESAB-123 **Hours: 7:30 AM to 4:00 PM EST**

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IF YOU DO NOT KNOW WHOM TO CALL

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